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ABSTRACT

This document presents guidelines for preschool learning experiences in Massachusetts programs for 3- and 4-year-olds and is designed to be used by teachers and program administrators in planning and evaluating curricula. The guidelines structure learning through play and meaningful activities in a developmental sequence and are based on the following principles: (1) all young children are capable of learning; (2) children show individual differences in development; (3) knowledge of child growth and development is essential for program development and implementation; (4) children's language skills are the best predictors of academic success; (5) developmental domains are highly interrelated; (6) young children learn by doing; and (7) families are the primary caregivers and educators of their young children. Following introductory remarks, the guidelines are organized into six major sections: (1) English language arts; (2) mathematics; (3) science and technology/engineering; (4) history and social science; (5) health education; and (6) the arts. Each section delineates learning guidelines focusing on what staff should do to help young children develop needed skills and knowledge, links to the Massachusetts Prekindergarten-Kindergarten standards, and ideas for preschool learning experiences. Appended are suggested adaptations for children with disabilities and a 169-item bibliography. (KB)

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Guidelines for Preschool Learning Experiences

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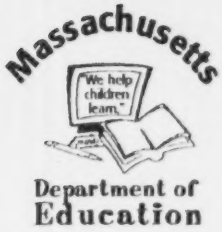

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Introduction

The *Early Childhood Program Standards* and the *Guidelines for Preschool Learning Experiences* reflect the Massachusetts Department of Education's commitment to quality, in order to ensure a solid foundation for learning and school success. The role of the early years in a child's development has received a great deal of attention in recent years. Research on brain development supports the value of high quality early childhood education programs for young children, while studies of early childhood education also provide evidence for their benefits. The national Cost, Quality, and Outcomes study (Helburn, 1995) showed that children who have traditionally been at risk of not doing well in school are affected more by the quality of early childhood experiences than other children are. The Carolina Abecedarian study found that early childhood education significantly improved the academic achievement of poor children even into early adulthood, showing higher reading and mathematics scores for individuals who had received early intervention.

The *Guidelines for Preschool Learning Experiences* is based on the standards for PreK-K (or PreK-Grades 1-4) in the approved revisions of the *Massachusetts Curriculum Frameworks*. The Learning Guidelines are based chiefly on these standards, and are followed by ideas for learning experiences that preschool staff can use to design a multitude of foundational learning experiences for young children. The number of the related standard in the relevant Framework appears in a note after each Learning Guideline. Links to the Frameworks are primarily needed for aligning curriculum within public schools and for others involved in the continuity of curriculum from preschool (public and non-public) into kindergarten. If needed, relevant sections of the Frameworks may be checked on the website www.doe.mass.edu/frameworks. For the sake of eliminating repetition, some areas have been combined when a topic appears in more than one Framework. Guidelines focus on what staff should do to help young children develop needed skills and knowledge rather than on what children are expected to know and do at the age of three or four. Although the Learning Guidelines reflect individual content areas, they should be used in an integrated way for curriculum planning and pedagogy.

The *Guidelines for Preschool Learning Experiences* is designed to be used by teachers and program administrators in planning and evaluating curriculum. Programs need to demonstrate that they are utilizing the Guidelines to plan curriculum by maintaining written documentation of goals and curriculum plans. This should not present any additional burden to programs already operating under Community Partnerships for Children because they are already doing this under the Office for Child Care Services (OCCS) Standards and/or the National Association for the Education of Young Children (NAEYC) accreditation criteria, both of which require curriculum planning. The Guidelines are voluntary to the extent that programs are **not** expected to "meet" all of the guidelines but only to demonstrate that they are providing experiences that build broad and balanced foundations for learning in all content areas. While the terminology in the Guidelines may sound sophisticated for preschool children, teachers should be able to articulate to parents and to the community how early experiences relate to later academic achievement.

The following principles should serve as a guide in understanding and implementing the *Guidelines for Preschool Learning Experiences*:

1. **All young children are capable of learning.** All children are capable of positive developmental outcomes. Preschool teachers should hold high expectations for all young children.
2. **Children show individual differences in development.** Although children develop skills and competencies through a generally predictable sequence of milestones, they do not develop them in exactly the same way or at exactly the same time. Some children may have a developmental delay or disability that requires individualized expectations, experiences, and materials.
3. **Knowledge of child growth and development is essential for program development and implementation.** Decisions about appropriate curriculum for groups of children and for individual children should be based on knowledge of child development and on careful observation of children at play.
4. **Children's language skills are the best predictors of academic success.** Development of children's English language skills should be a major goal of the preschool curriculum. Early childhood is a critical time in the development of vocabulary and other language skills. These skills provide the foundation for learning to read and write and for later academic achievement.
5. **Developmental domains are highly interrelated.** Development in one domain influences the development in other domains. This interrelationship must be considered in planning preschool programs. For example, children's mathematical learning may occur on the playground, in dramatic play, and while using sensory materials.
6. **Young children learn by doing.** Teachers should provide opportunities for children to explore materials, to engage in physical activities, and to interact with peers and adults. A balance of child-initiated and teacher-selected activities will maximize children's learning.
7. **Families are the primary caregivers and educators of their young children.** Program staff must give families the information they may need to support their children's learning and development. Program staff and families should also work together to ensure that children are provided with the best learning experiences possible at home and at preschool.

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Guidelines for Preschool Learning Experiences structures learning through play and meaningful activities in a developmental sequence. The mark of a superior teacher is the ability to select materials and interact with children in ways that help them learn through their own play and these planned activities. Young children need many and varied opportunities to:

- **Plan**: children consider what they are going to do with materials and how they are going to do it.
- **Play**: children use materials and equipment in ways that best suit their personal curiosity and understanding.
- **Reflect**: children recall things that happened to them, reinforcing or questioning their understandings.
- **Revisit**: children practice skills and replay experiences in many different ways, with each activity refining or modifying previous learning.
- **Connect**: children, with the help of staff, connect new knowledge with past experiences, creating links among subject areas and areas of skill development.

Individualizing Curriculum

Early childhood educators need to become aware of children's individual interests and strengths and find ways to engage and expand them. They can do so by arranging for a rich variety of learning experiences that appeal to all the senses — visual, auditory, and physical — and by alternating individual, partnered, small group, and large group activities so that children experience various kinds of social interaction.

In early childhood programs, assessment takes place by observing children in daily activities and taking note of their skills, understandings, interests, vocabulary, and attitudes toward various tasks. It includes communicating with families regularly to learn about the circumstances that may affect classroom behaviors or interactions, such as personal or family illness, injury, and child-rearing beliefs and practices. While children exhibit a broad range of individual differences and personal interests, assessment should ensure that both boys and girls have opportunities to participate in a range of activities, from block building to musical, artistic, or dramatic play, in order to stimulate the development of spatial, artistic, musical, and verbal abilities in all children.

Inclusion of Children with Disabilities

Many Massachusetts preschool classrooms include children with disabilities. Teachers need to promote the integration of these children with their peers in regular classroom activities. Emphasizing what children can do and enjoy doing builds their confidence. Children with disabilities should be viewed as just like other children and helped to participate as fully as possible in all areas of the preschool curriculum. *(See Appendix A for some specific ideas.)*

Inclusion of children with disabilities in regular classroom activities is a full team responsibility that draws on parents' knowledge of how their child learns, along with the specific areas of expertise of other team members. Inclusion is most successful when administrators provide staff with adequate planning time, as well as training and support from specialized service providers in making necessary modifications. Children with disabilities often attend a variety of settings. They may attend a public school program for part of the day, and move to a child care setting for the rest of the day. Or they may receive specific services through a public school, but attend a center-based, school-based, or Head Start early childhood program. There needs to be ongoing communication among all the programs and special service providers to ensure consistency in meeting their needs.

In inclusive programs, the classroom environment or activities may need to be modified to enable children with disabilities to participate with their peers. Classroom teachers need to plan and/or modify activities depending on the learning needs or strengths of each individual child. Thoughtful adaptation of activities will allow children with disabilities to participate with their peers to the fullest extent possible. When planning activities teachers can ask themselves questions such as:

- Can all children access this activity as is?
- How will a child with vision or hearing disabilities relate to this activity?
- What adaptations can be made to increase sensory input?
- How could a child with delayed cognitive development participate successfully in this activity (e.g., would manipulatives enhance comprehension?)
- How can group time be relaxed to allow children with short attention spans or behavioral issues to participate successfully?

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Terminology

The language used in the Guidelines draws directly on the Massachusetts Curriculum Frameworks. For instance, the term "Physics" in the section on Science and Technology/Engineering may sound complicated for preschool children; however, physics relates to concepts in balance and motion, and young children can build beginning concepts in physics through very appropriate experiences such as block building and exploring wheeled vehicles. These guidelines are not intended to be implemented through direct instruction but rather through developmentally appropriate play experiences in the typical daily preschool setting.

Using the Guidelines

Teachers who work with preschool age children are part of the larger educational system. One way to demonstrate this is to use discipline-based language from the Frameworks and to articulate to others how play links to learning. Using the vocabulary of the content areas of the school curriculum does not mean abandoning play or proven methods for engaging young children in learning. It means only that preschool teachers present the experiences they offer young children as the beginning of a continuum for academic learning. Use of Framework terminology will help preschool teachers build the bridge between early childhood care and formal education for themselves and help others see that relationship.

Teachers may want to discuss what kinds of evidence they can collect to document children's progress or skills. Programs are not expected to demonstrate implementation of all the Learning Guidelines. Programs should, however, refer to them in written documentation of their goals and curriculum plans. The activities are examples of experiences that build the skills and understandings in the Learning Guidelines. They are designed for a range of skill development and are useful for planning curriculum and self-evaluation. The examples are not intended as a complete stand-alone curriculum. Nor should they be interpreted as required activities, or as limitations on the curriculum. They are offered as a tool to evaluate and enhance each program's curriculum.

Ncte: See Appendix A in the Early Childhood Program Standards for Three and Four Year Olds *for a suggested list of equipment and materials for preschool programs. These will help teachers implement the ideas in the Guidelines.*

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Guiding Preschool Learning in English Language Arts

The foundations for learning in the English Language Arts are critical to all other curriculum areas as well as to the child's social and emotional development. Children develop the basis for verbal communication in early childhood, beginning with nonverbal social exchanges. They begin to appreciate literature and the joy of reading by being read to in family and early care/education settings. A solid foundation in language development in the years before a child enters school promotes success in reading and writing in the future. A well-planned program will encourage children to learn about the world around them. Preschoolers are more likely to want to read and write when their imaginations have been regularly stimulated by being read to.

Language

Learning Guidelines	Ideas for Learning Experiences
1. Observe and use appropriate ways of interacting in a group (taking turns in talking; listening to peers; waiting until someone is finished; asking questions and waiting for an answer; gaining the floor in appropriate ways). *Link to Discussion 1.1*	▪ interact with other children and adults in small groups through informal activities and everyday routines. ▪ participate in activities that generate response (e.g., fingerplays, songs, action games). ▪ help to formulate rules for group interactions. ▪ use a system for taking turns and developing listening skills (e.g., passing a ball around the circle). ▪ respond to social cues appropriately (signaled by eye contact, tone, pitch, volume, body language). *Note: Group size and time spent in a group need to be limited, appropriate to children's age and attention span.*
2. Participate actively in discussions, listen to the ideas of others, and ask and answer relevant questions. *Link to Questioning, Listening and Contributing 2.1*	▪ engage in meaningful conversations and discussions with peers and with adults, one-on-one, or in small groups. ▪ share their ideas and experiences in small groups (e.g., express what they know or want to learn about a topic). ▪ ask questions to further understanding (e.g., "Where did the snow go when it melted?") or about daily routines (e.g., "What's for lunch?" " Can we play outside today?") ▪ respond to teachers' conversation-starters such as "I'm trying to make a snake out of play dough"; "You picked up a blue truck;" "I wonder...; I wish...."
3. Communicate personal experiences or interests. *Link to Oral Presentation 3.1; Evaluation 25.1*	▪ describe experiences to adults or other children in informal conversations. ▪ create representations (e.g., drawings, paintings, constructions) about their ideas and describe them to others. ▪ complete open-ended questions or statements on a topic (e.g., "The last time I went to the beach, I....") ▪ plan, make choices and decisions, and communicate them. ▪ after sharing information, children discuss what they remember best about what was said. ▪ describe or represent daily activities as a way of reviewing or reflecting (e.g., explain why they selected a particular activity area, what they did in that area, and how materials were used). ▪ express what they might do differently the next time an activity is visited. ▪ share information about what children learned with others (peers/adults).

Learning Guidelines	Ideas for Learning Experiences
4. Engage in play experiences that involve naming and sorting common words into various classifications using general and specific language. *Link to Vocabulary and Concept Development 4.1 and 4.2*	• select an object from a collection of common items, identify it, then use specific words to describe it (e.g., in terms of color, shape, size, use). • generate collections of words that can be used to describe categories of words (e.g., footwear could include sneakers, shoes, boots, sandals, socks, slippers). • look at illustrations to gain clues to the meaning of new or confusing words. • examine familiar objects closely, then more closely, adding descriptors with increasing detail (e.g., a child's shoe; a flower). • use a feely box or texture board to name, sort, and categorize various objects. • play guessing games in which children use descriptors ("I'm thinking of something round."). • participate in webbing experiences that expand, break down, and link familiar concepts (e.g., thinking of many words/concepts related to a specific topic such as dogs). • hear new words introduced at the beginning of a story or activity, and reviewed at the end.
5. Listen to and use formal and informal language. *Link to Formal & Informal English 6.1*	• use new vocabulary introduced through book reading in their play. • listen to stories and poems that use formal and informal language. • freely play with language (e.g., making up nonsense words that rhyme). • respond to and/or dramatize different voices for different characters from familiar stories. • listen to models of appropriate and correct language by adults (appropriate sentence structure, grammar, syntax). • imitate dialogue of characters in familiar stories such as *The Three Bears; The Three Little Pigs.*

Reading & Literature

Learning Guidelines	Ideas for Learning Experiences
6. Listen to a wide variety of age appropriate literature read aloud. *Link to Beginning Reading 7.1, 8.3*	▪ explore a wide variety of printed materials about subjects that interest children (e.g., storybooks, picture dictionaries, factual and informational books such as books about science, and books that relate to families and cultures), with texts of varying levels of difficulty. ▪ listen to age-appropriate stories read aloud frequently and repeatedly. ▪ identify favorite books by their cover. ▪ use a listening center with books on tape and matching print books. ▪ handle books respectfully and appropriately, holding them right-side-up and turning pages one at a time from front to back. ▪ create and re-read class-made books. ▪ use "big books" and take part in turning pages. ▪ pretend to read by pointing with a finger while reciting text.
7. Develop familiarity with the forms of alphabet letters, awareness of print, and letter forms. *Link to Beginning Reading 7.1*	▪ see alphabet letters displayed at children's eye level. ▪ examine upper and lower case letter shapes by their spatial features (e.g., a lower case "a" can appear differently) using laminated alphabet letters printed in various fonts, alphabet sorting boxes, alphabet books. ▪ explore letters through sensory experiences (e.g., trace letters made of sandpaper, rice; use alphabet cookie cutters, alphabet stamps, or pasta alphabets). ▪ create letters with materials such as finger paint, string, yarn, clay, pipe cleaners. ▪ listen to and explore alphabet books and alphabet puzzles in which children can see and compare letters and distinguish one from another. ▪ observe print (or Braille as appropriate) in everyday activities and routines including labels on objects and materials; captions on children's projects or photographs of children's activities; nametags on cubbies and coat hooks. ▪ dictate words to tell a story (to build awareness that words can be put together to make sentences). ▪ take home the words of familiar songs, rhymes, fingerplays printed out. ▪ associate pictorial symbols with objects or actions (e.g., picture recipes; rebus stories). ▪ observe adults, teachers, and family members using print to gain meaning and understanding. ▪ use alphabet stamps, magnetic letters, alphabet blocks.
8. Listen to, identify, and manipulate language sounds to develop auditory discrimination and phonemic awareness. *Link to Beginning Reading 7.2*	▪ differentiate among meaningful sounds (e.g., recorded or environmental sounds; sealed listening jars filled with various materials). ▪ break words into syllables (e.g., clap or tap them out with rhythm instruments). ▪ repeat and manipulate sequences of phonemes using phonological memory (e.g., "bo-be-ba"). ▪ find pictures or think of words that begin with a specific initial sound. ▪ fill in rhyming words in stories, poems and songs (e.g., make up new words to the song *Down by the Bay*... did you ever see a moose kissing a goose). ▪ play with phoneme substitution (changing the first sound in a word) for example, singing *Zee-Zi-Ziddly-I-O* instead of *Fee-Fi-Fiddly-I-O*. ▪ use finger plays, games, poems, and stories that include rhyme and alliteration to develop an awareness of differences in spoken words, syllables, and sounds. ▪ *For older 4 year olds*: Count phonemes (e.g., determine that the word "bat" has three sounds). Phonemes are the smallest units of spoken language (e.g., there are three phonemes in man–m/a/n– and four phonemes in enough–/e/n/u/f).

Learning Guidelines	Ideas for Learning Experiences
9. Link letters with sounds in play activities *Link to Beginning Reading 7.3*	▪ compare the similarities in sounds of words and letters. ▪ listen to letters matched with sounds in meaningful contexts (e.g., "Look, the word on your shoe starts with N – Nike, just like your name, Nicholas."). ▪ play guessing games using letter sounds ("I spy something that begins with rrrrrrr."). ▪ select alphabet letters that match with their sounds ("Find the letter that says "mmmmm."). ▪ hear specific letter sounds in the beginning, middle, and at the end of words.
10. Engage actively in read-aloud activities by asking questions, offering ideas, predicting or retelling important parts of a story or informational book. *Link to Understanding a Text 8.1, 8.2, 8.3, 8.4, 8.5*	▪ retell a familiar book from memory or based on the illustrations. ▪ arrange illustrations of key incidents from the story in order of what happened first, next. ▪ make inferences about characters' motivations. ▪ act out a story through flannel board, puppets, or dramatic play with props. ▪ describe or represent (e.g., through drawings, constructions) what children remember after listening to an informational book. ▪ respond appropriately to teachers' questions about stories. ▪ listen to stories without illustrations (e.g., chapter books read aloud during rest time) to give children the opportunity to "make pictures in their minds."
11. Listen to several books by the same author or using the same illustrator. *Link to Making Connections 9.1 and 9.2; Fiction 12.1 12*	▪ identify similarities in plot, setting or character among various works by the same author or illustrator. ▪ explore interpretations of the same story by different authors/illustrators (e.g., variations of a fairy tale/folk tale such as *Goldilocks and the Three Bears* or *The Mitten*). ▪ create their own stories or illustrations similar to those read to them (e.g., create collages after hearing a story by Eric Carle). ▪ recognize the name or work of particular author or illustrator. ▪ make inferences about important characters, settings, or events in stories. ▪ take home a class-made book, and describe the story and illustrations to family members.

Learning Guidelines	Ideas for Learning Experiences
12. Listen to, recite, sing, and dramatize a variety of age-appropriate literature. *Link to Genre 10.1; Non-Fiction 13.1, 13.2, 13.3, 13.4; and 13.5; Myth, Traditional Narrative, and Classical Literature 16.1, 16.2, 16.3; Dramatic Literature, Reading and Performance 17.1 and 18.1*	▪ recite, sing, or retell fairy tales, *Mother Goose* rhymes, poetry, myths. ▪ talk about real versus make-believe characteristics (e.g., do rabbits wear clothing?). ▪ compare a factual book with a fictional story (e.g., a scientific book about metamorphosis and Eric Carle's, *The Very Hungry Caterpillar*). ▪ visit a library and talk with a children's librarian. ▪ make a list of all the important facts children recall after listening to a book or story read aloud. ▪ create an original work of nonfiction from children's lists of accumulated facts (e.g., make a "big book" about a topic of children's interest). ▪ retell information from a class-made book. ▪ predict what a book is about from the illustrations. ▪ describe or represent the main idea of a story (e.g., verbally or through drawings). ▪ sing traditional lullabies. ▪ use predictable terms such as "Once upon a time..." or "They lived happily ever after" in retelling or dramatizing traditional literature. ▪ use dialogue from familiar stories in dramatic play (e.g., "Who's been sleeping in my bed?").
13. Relate themes and information in books to personal experiences. *Link to Theme 11.1*	▪ compare events in books to their own experiences. ▪ explore themes that grow out of children's interests/experiences (e.g., staff listen to children's conversations and respond to their curiosity/interests by providing related books). ▪ offer verbal or pictorial evidence from a book to support understanding.
14. Recognize and supply rhythm and rhyme in poetry. *Link to Poetry 14.1*	▪ listen to books/poems that include repetitive/rhythmic elements. ▪ listen to and recite *Mother Goose* and other nursery rhymes. ▪ respond to auditory patterns in poems and stories, songs (e.g., clap out the patterns). ▪ contribute real or nonsense words that fit rhythm and rhymes in poems, songs, nursery rhymes.
15. Listen to, recognize, and use a broad vocabulary of sensory words. *Link to Style and Language 15.1*	▪ listen to age-appropriate stories, poems, and songs that suggest mood and/or create visual images, or that are rich in descriptive vocabulary (e.g., "mud is very ooey gooey"). ▪ participate in a wide variety of sensory experiences that reinforce sensory vocabulary (e.g., fluffy shaving cream, sticky glue). ▪ describe everyday experiences using sensory language (e.g., "the play dough felt sticky;" "the cotton is soft;" "the sandpaper is scratchy"). *Note: Children with expressive language disabilities or limited English proficiency may be able to indicate understanding of terms by pointing to appropriate illustrations or sensory materials.* ▪ share children's perceptions about sensory experiences using descriptive vocabulary and generate a story for the newsletter to share with families.

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Composition

Learning Guidelines	Ideas for Learning Experiences
16. Use their own words or illustrations to describe their experiences, tell imaginative stories, or communicate information about a topic of interest. *Link to Foundations for Writing 19.1, 19.2, 19.3, 19.4, 20.1*	▪ draw pictures or use letters or phonetically spelled words to tell a story or give information. ▪ dictate words/sentences and have them written and read back by the teacher (e.g., labels, messages, news). ▪ use composition in many activity areas including dramatic play, art, and block areas (e.g., create captions and notes, make lists related to a topic of interest such as describing things seen on a field trip; compose notes, invitations or thank you letters). ▪ contribute to or create stories from a starter such as "Once upon a time, there was a...." ▪ create original books (e.g., that describe an experience, tell about their likes, dislikes, capabilities). ▪ use computers and age-appropriate software as writing tools (e.g., preschool word processing programs that allow children to produce enlarged print, hear what they have written, use the mouse to draw, or make scribbles to accompany their drawings).
17. Add details or make changes to published or class-made stories. *Link to Framework, Revising 21.1*	▪ expand ideas or details to make a group story more complex. ▪ think up new endings to familiar or original stories. ▪ describe how events might turn out differently with changes in circumstances. ▪ revise familiar published stories by changing the characters, details (e.g., creating their own version of *Brown Bear, Brown Bear, What Do You See?*).
18. Use emergent writing skills to make letters in many settings and for many purposes. *Link to English Conventions (letter formation) 22.1*	▪ use a wide range of materials that encourage writing behaviors including portable chalkboards, easels, dry-erase boards, magnetic boards, alphabet blocks, letter tiles, an alphabet pocket chart, pencils, markers, chalk, colored pencils, crayons, blank books, paper, stamps, envelopes. ▪ include writing as an integral part of daily activities (e.g., signs, name cards, grocery lists, menus, greeting cards, messages, recipes). ▪ develop physical skills such as hand strength and coordination needed to grasp and control writing tools (e.g., use hole punchers, squeeze water out of sponges). *Also see Health guidelines for fine motor development.* ▪ engage in sensory experiences such as making letters in sand, with finger paint, or tracing over sandpaper letters. ▪ receive guidance from adults in appropriate formation of letters (if requested by children).
19. Arrange events in order when dictating a story. *Link to Organizing Ideas 23.1*	▪ verbally describe or represent through drawings, paintings, or models the sequence in which events in stories took place (e.g., What happened first? Next? Last?). ▪ contribute to group discussions about meaningful events in order to compose a story or article for a newsletter. ▪ arrange illustrations or photographs of personal experiences in sequence.
20. Generate questions and gather information to answer their questions in various ways. *Link to Research 24.1*	▪ use the "K-W-L" strategy to express what they know; want to know; and have learned related to a topic. ▪ work with teachers to find logical sources for the information they need (e.g., reading a fictional story about a spider, consulting non-fiction books, then investigating real spider webs through direct observation). ▪ describe something learned about a topic (e.g., butterflies, frogs, snow) verbally or through representations. ▪ create, display, and describe representations of their investigations through drawings, paintings, photographs, constructions, and stories. ▪ formulate questions with teacher support to begin to learn the difference between questions and statements.

Guiding Preschool Learning in Mathematics

Mathematics relates to ideas and concepts about quantity and addresses logical and spatial relationships. At the preschool level, the foundations of mathematical understanding are formed out of children's concrete experiences. Mathematical experiences should not be limited to "math time." They can be embedded in almost all daily classroom activities, challenging teachers to be alert to opportunities for facilitating mathematical understanding. Mathematical thinking can be incorporated into block play, dramatic play, sand and water play, and outdoor play. Children can also make connections between mathematics and musical experiences or art when they explore rhythmic or visual patterns or symmetry.

Preschool children can learn to recite numbers in order, compare quantity, comprehend position, and match objects in one-to-one correspondence. Number concepts become significant to children when they develop out of experiences that are functional in their world. Preschool activities can build their understanding of number concepts, and also build foundations for understanding characteristics and properties of two- and three-dimensional geometric shapes.

Number Sense

Learning Guidelines	Ideas for Learning Experiences
1. Listen to and say the names of numbers in meaningful contexts. *Link to K.N.1*	▪ play games and listen to stories and poems that contain numbers and counting sequences. ▪ use concrete objects to practice one-to-one correspondence (e.g., say the name of objects while placing an object in each space in an egg carton; distributing a musical instrument to each child in a group; putting pegs in each hole of a pegboard). ▪ count concrete objects for a meaningful purpose (e.g., three crackers for snack; two eyes to glue on the bunny; three steps down to the playground). ▪ follow visual or rebus recipes (e.g., for making play dough or cookies). ▪ point to numbers displayed in the preschool setting (e.g., labels on objects, projects, activity areas; children's bus numbers, children's ages).
2. Connect many kinds/quantities of concrete objects and actions to numbers. *Link to K.N.2*	▪ arrange and count a variety of different kinds of objects to explore the consistency of quantities (e.g., to build understanding of what "3" looks like, whether you are counting blocks, beads or pinecones). ▪ participate in fingerplays and action rhymes that associate number concepts with concrete actions (e.g., *Five Little Monkeys Jumping on the Bed*). ▪ use concrete objects, actions, or drawings to represent quantities (e.g., jump two times; stack four unit blocks; string three beads, hold up two fingers, get three blocks on request).
3. Use positional language and ordinal numbers (first, second, third) in everyday activities. *Link to K.N.3*	▪ place concrete objects such as nesting or stacking cups, boxes, or dolls in a row and identify their position as first, second, third. ▪ arrange materials in order (seriate) from small to large; short to long, etc. ▪ use ordinal numbers and positional words (e.g., before/after; first, second, third) to describe the order of daily activities. ▪ arrange illustrations from a story or photographs of class events or daily routines in sequence.

Learning Guidelines	Ideas for Learning Experiences
4. Use concrete objects to solve simple addition and subtraction problems using comparative language (more than, fewer than, same number of). *Link to K.N.4; K.N.7*	▪ distribute and compare concrete objects in meaningful ways (e.g., which bucket has more rocks in it; how many more napkins are needed for everyone at the table). ▪ sing songs and do fingerplays that involve adding and taking away (e.g., *Two Little Blackbirds*). ▪ use pictorial recipes and discuss how many more cups of cups of flour need to be added to the cookie dough. ▪ make pictorial menus or shopping lists; identify the amount the amount of money needed to "buy products" in various play areas. ▪ figure out how many blocks they have altogether when they join two sets or how many blocks are needed to make two towers the same size. ▪ see and discuss meaningful examples of the concept of "none" (e.g., you have two cookies left, I have none).
5. Observe and manipulate concrete examples of whole and half. *Link to K.N.5*	▪ cut food into two equal parts for snacks. ▪ match whole objects to similar objects that have been broken or cut in half. ▪ divide a set of objects into two equal parts (e.g., two for you and two for me).
6. Examine, manipulate, and identify familiar U.S. coins (penny, nickel, dime, quarter) in play activities. *Link to K.N.6*	▪ create a grocery store or shoe store in the dramatic play area and use play money to pay for items. ▪ listen to age appropriate books about money and identify the coins. ▪ separate coins by color and size.

Patterns & Relations

Learning Guidelines	Ideas for Learning Experience
7. Explore and describe a wide variety of concrete objects by their attributes. *Link to K.P.1*	▪ describe the size, shape, color, and texture of everyday materials such as pasta, rocks, shells, unit blocks, attribute blocks, parquetry blocks, crackers. ▪ play games that include identifying (pointing to, selecting, or naming) a specified object from a group of objects (e.g., lotto, concentration cards). ▪ listen to and use words that describe the characteristics of objects (e.g., big, small, tall, short, narrow, thick, thin, deep, shallow, round, flat, straight, crooked, heavy, light).
8. Sort, categorize, or classify objects by more than one attribute. *Link to K.P.2*	▪ sort parquetry blocks or string beads by size, shape, color, or texture (e.g., big circles/small circles; blue squares/blue circles; big yellow squares/small yellow squares).

Learning Guidelines	Ideas for Learning Experience
9. Recognize, describe, reproduce, extend, create, and compare repeating patterns of concrete materials. *Link to K.P.3*	▪ repeat clapping or drumbeat patterns. ▪ use pattern cards to reproduce patterns with concrete objects such as beads, colored cubes, mosaic tiles with pattern cards. ▪ find patterns in their everyday environment (plaid, stripes, checks on clothing, floors or walls). ▪ repeat a pattern/sequence in a variety of ways (e.g., an ABAB pattern with stickers, blocks, or stamps). ▪ manipulate objects in and out of patterns. ▪ recognize and predict word patterns in familiar rhythms, music or stories. *Note: The ability to recognize and create patterns generally develops over time. The ability to distinguish multiple attributes also grows over time.*

Shapes & Spatial Sense

Learning Guidelines	Ideas for Learning Experiences
10. Investigate and identify materials of various shapes, using appropriate language. *Link to K.G.1, K.G.2*	▪ sort parquetry blocks by one or more attributes. ▪ place unit blocks on top of their silhouettes. ▪ feel and describe parquetry blocks, then try to identify them without looking. ▪ eat snacks cut in various shapes; cut cookie dough into basic shapes. ▪ create/represent shapes (e.g., using popsicle sticks, pipe cleaners, unit blocks). ▪ find examples of basic shapes such as circle, square, triangle, and rectangle in the environment (e.g., go on a "shape walk" indoors or outdoors to find examples of basic shapes in buildings, in the classroom, in nature). ▪ locate individual objects in pictures composed of overlapping shapes or find shapes in magazine illustrations, picture books (e.g., *I Spy* books).
11. Explore and identify space, direction, movement, relative position, and size using body movement and concrete objects. *Link to K.G.4*	▪ illustrate position and relative distance among objects/locations using classroom materials or outdoor equipment (e.g., up, down, high, low, above, below, in front of, behind, beside, near, far, next to, apart, together). ▪ move their bodies in space by following verbal instructions through an obstacle course (e.g., crawl under the table, walk around the jungle gym; jump over the block). ▪ follow or use directional language related to daily routines and activities or in dance recordings (e.g., "Put your hands up, down, over your head."). ▪ locate objects based on directional words (e.g., it's next to the ball; under the basket). ▪ play with puzzles of increasing complexity as skills develop. ▪ figure out how much space is needed for a task (e.g., to build a construction using large interlocking panels, or whether two children can fit inside a cardboard box). ▪ identify shapes in different orientations (a triangle is still a triangle even though it's turned in different directions).
12. Listen to and use comparative words to describe the relationships of objects to one another. *Link to K.M.1*	▪ compare and describe objects according to a single attribute (e.g., which is bigger, smaller, taller, longer, shorter, same length, wider, narrower, thicker, thinner, deeper, shallower, lighter, heavier, holds less, or holds the same amount). ▪ measure sand, water, or rice using a variety of containers and compare the amounts. ▪ make objects of play dough and compare their size. ▪ build structures with blocks and compare their length or height. ▪ string beads and compare the length of two necklaces. ▪ use simple balance scales to compare the weight of classroom materials. ▪ compare the size of various everyday objects (e.g., put various people's shoes side by side to see which is longest). *Note: Younger preschool children should focus on a single attribute at a time.*

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Measurement

Learning Guidelines	Ideas for Learning Experience
13. Use estimation in meaningful ways and follow up by verifying the accuracy of estimations. *Link to K.M.2*	▪ estimate how many steps it will take to cross the room or the sandbox; how many small containers it will take to fill a larger one, how many mosaic tiles it will take to fill the board; which cup contains more beans. ▪ experiment to verify whether their estimates were accurate.
14. Use nonstandard units to measure length, weight, and amount of content in familiar objects. *Link to K.M.3*	▪ measure the circumference of a pumpkin or watermelon using a piece of string. ▪ measure the length of a table using their hands. ▪ measure the width of the sandbox with footsteps. ▪ measure a child's height using large cardboard blocks. ▪ compare the length of two play dough snakes or the height of two block towers using their hands. ▪ compare the capacity of two different containers in the sand or water table.

Data Collection & Analysis

Learning Guidelines	Ideas for Learning Experience
15. Organize and draw conclusions from facts they have collected. *Link to K.D.1*	▪ construct simple graphs and charts to describe concrete materials (e.g., after sorting leaves, children create a graph illustrating the various kinds of leaves, marking the number of leaves in each category, and describing how they sorted the leaves). ▪ take part in creating and discussing surveys (e.g., survey children's food preferences to decide what snack to serve, with children placing marks on graphs indicating their choice).

Guiding Preschool Learning in Science and Technology/Engineering

Young children are naturally curious. They wonder what things are called, how they work, and why things happen. The foundations of scientific learning lie in inquiry and exploration — these are the tools of active learning. Fostering young children's sense of curiosity about the natural world around them can promote a lifelong interest in it. Scientific learning should not be limited to a particular "science time." Early childhood teachers should look for opportunities to develop children's understanding of scientific concepts in all content areas. To do so, children need to observe things first-hand as much as possible. The younger the children, the simpler and more concrete the activities need to be. Classrooms need to have scientifically accurate books about animals and their environments such as field guides, as well as fictional stories. In all activities, teachers should make sure they use, and encourage children to use, the precise language of science.

The skills and processes of inquiry and exploration are fundamental to all the sciences. At the early childhood level the processes of experimentation may require preparation of the classroom environment, routines and materials as well as attention to how children operate and utilize materials.

The **Earth and Space Sciences** describe the properties of the earth, ocean, atmosphere, and universe (what things are called; what they do; how they look, act, and react to various stimuli). It includes geology and astronomy.

- Geology deals with the formation of the earth, its layers, forms and substances. Although young children can observe, discuss, and visit features of the earth such as mountains, lakes, beaches, oceans, rocks, and fossils, their concepts are limited to those things they experience repeatedly.
- Astronomy deals with the universe beyond the earth's atmosphere. Children can observe the cycle of day and night, the movement of the sun, the waxing and waning of the moon, and the stars in the sky.

The **Physical Sciences** investigate natural forces and the basic elements in natural substances.

- Physics is the study of matter, energy, motion and force. It deals with speed, leverage, balance, gravity, and mechanical systems. Young children can grasp these concepts through exploratory play — they drop a toy and watch it fall to the floor; their unbalanced tower of blocks falls over; a cork floats in the water table while a rock sinks. Many repeated experiences help children grasp that these are predictable phenomena.
- Chemistry deals with the composition, properties, and transformations of substances. For example, earth combined with water makes mud; play dough disintegrates in the water table; oil separates from salad dressing; sugar dissolves in liquid; food coloring combines with water. Through cooking, mixing, and art experiences, children can observe how chemical transformations take place through heat, moisture, and combining substances.

The **Life Sciences** include the study of living things (what they are, how they survive, their life cycles, how they change). Young children need concrete experiences that enable them to observe, categorize, compare, and contrast living things. The three major components of the life sciences are biology, physiology, and ecology.

- Biology is the study of plants, animals, their structure, origin, growth, and reproduction.
- Physiology deals with the processes and functions of living things. Children learn about these concepts by identifying parts of their bodies, learning about their five senses, and observing a variety of living creatures and plants.
- Ecology deals with relationships between living things and their environment. Children can be taken on nature walks to see how living things have adapted to different environments.

Technology/Engineering involves finding out how things are constructed and work, and thinking about what can make them work differently/better. Science tries to understand the natural world; the goal of engineering is to solve practical problems through the development of technologies. Technologies developed through engineering include the systems that provide our houses with water and heat; roads, bridges, tunnels, and the cars that we drive; airplanes and spacecraft; cellular telephones; televisions and computers; many of today's children's toys, and systems that create special effects in movies.

Preschool children can begin to develop concepts in engineering as they design, build, and test solutions through their play — as they construct sand castles and build cities out of blocks. They can also begin to understand that tools help people do things better or more easily, or do some things that could otherwise not be done at all.

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Inquiry Skills

Learning Guidelines	Ideas for Learning Experiences
1. Ask and seek out answers to questions about objects and events with the assistance of interested adults. *Link to Introduction, Inquiry skills*	▪ conduct simple investigations, with guidance about what to look for or compare (e.g., a leaf hunt using samples of leaves to find others that are the same shape/color). ▪ determine which objects sink or float in the water table (e.g., feather, cork, bottle, pencil, pine cone, string, nail, marbles, key, soap, eraser) and what the floaters/sinkers have in common. ▪ answer "what if" type questions (e.g., what will happen if materials are mixed together?). ▪ ask questions about materials and the environment (e.g., "Why is it wet?"). ▪ work in small groups of 2 or 3 children on a common goal (e.g., look for a specific object in the classroom or yard and explore it together).
2. Make predictions about changes in materials or objects based on past experience. *Link to Introduction, Inquiry skills*	▪ predict "what will happen if. . ." (e.g., if play dough is left uncovered overnight; if soap is added to the water table; if the pumpkin is left in the classroom for a month). ▪ test predictions through concrete experiences to confirm or refute them (e.g., use eye droppers to mix food colors with water or use hand egg beaters in the water table). ▪ discuss reasons why predictions were correct or incorrect. ▪ sort objects based on their predictions (e.g., whether they will sink or float or stick to the magnet).
3. Identify and use simple tools appropriately to extend observations. *Link to Introduction, Inquiry skills*	▪ use hand lenses of varying power to examine shells, leaves, rocks, and describe details observed. ▪ use sieves of varying density in the sand table to compare which catches the most debris and which sifts faster. ▪ experiment with balance scales using a variety of objects. ▪ use water wheels, funnels, and tubes in the water table or a hand beater to whip up bubbles. ▪ use eye droppers to add food color to water and mix colors. ▪ use woodworking tools (e.g., hammer/nails, hand drill/wood, screwdriver/screws, wire cutter/wire of assorted sizes, pliers). ▪ use a simple microscope to closely examine common materials (e.g., feathers, fabric scraps, shells, rocks). ▪ create a picture dictionary with the names/functions of various tools. *Note: Safety precautions should always be in place and reviewed with children when using potentially dangerous tools.*
4. Record observations and share ideas through simple forms of representation such as drawings. *Link to Introduction, Inquiry skills*	▪ create representations to illustrate what they learned about materials or the environment (e.g., create a collage, construction or mural showing which objects floated and which sank). ▪ help create charts to describe collections of materials (e.g., leaves from various trees, beach rocks) in terms of color, shape, size. ▪ draw their own interpretations of materials observed (e.g., the details in a shell or flower).

Earth and Space Sciences

Learning Guidelines	Ideas for Learning Experiences
5. Compare and contrast natural materials such as water, rocks, soil, and living organisms using descriptive language. *Link to Earth's Materials 1.1*	▪ fill the sand table with earth from the garden, then use magnifying glasses to examine and compare various samples. ▪ dig in soil to discover layers of the earth. ▪ explore the properties of water in its natural state as found in the daily environment (e.g., puddles, nearby streams or ponds). ▪ make wet sand constructions or mud pies. ▪ examine and compare rocks (e.g., compare colors of rocks; smoothness of beach rocks vs. rocks found in the forest or yard; discuss reasons for differences). ▪ look for living organisms (e.g., insects, plants, animals) in their natural environment.
6. Explore and discuss what air is or does (air takes up space inside bubbles and beach balls; air can move things; air can support things such as parachutes and kites). *Link to Earth's Materials 1.2*	▪ blow bubbles. ▪ use a hand pump to inflate a ball or tire. ▪ explore parachute activities (or make an inexpensive variation from an old sheet). ▪ try to move objects of varying weights (e.g., feather, paper, rock) by blowing on them. ▪ construct pinwheels, miniature kites, sailboats. ▪ make miniature parachutes out of small squares of cloth. ▪ observe air escaping from an empty plastic bottle placed under water or a beach ball deflating under water. ▪ feel air blown through a straw. ▪ experiment with air blown through tubes into water. ▪ make blow paintings. ▪ blow up a paper bag on which a book is set and watch the book rise.
7. Identify the characteristics of local weather based on first-hand observations. *Link to Weather 1.3*	▪ walk in the rain, wind, snow, and fog, and use all the senses to describe sensations. ▪ observe characteristics of clouds and make representations using finger paint, easel paints, shaving foam, whipped soap flakes. ▪ record observations about weather (e.g., create charts to show the number of snowy, sunny, cloudy days; amount of snow). ▪ listen to non-fiction books and scientifically accurate fictional stories related to weather.
8. Explore sunlight and shadows and describe the effects of the sun or sunlight. *Link to the Sun as a Source of Light and Heat 1.4*	▪ place objects on blueprint paper and expose them to the sunlight. ▪ observe colors created by sunlight through a prism hung in the window. ▪ listen to age appropriate, scientifically accurate stories related to sunlight and shadows (e.g., *Bear Shadow* by Frank Asch about a bear that tries to get rid of its shadow). ▪ experiment with ways to "lose" their shadows or change the shape of their shadows. ▪ observe what happens to shadows by moving in various positions. ▪ trace the outline of their shadows at different times of the day and observe changes.
9. Observe and describe or represent scientific phenomena meaningful to children's lives that have a repeating pattern (e.g., day and night). *Link to Periodic Phenomena 1.5*	▪ represent their observations of day and night through drawings, paintings, collage. ▪ sort familiar objects according to day/night (e.g., do you wear pajamas at night or in the daytime?) ▪ observe and identify the differences between night and day based on what children see in the sky. ▪ listen to and retell stories about night and day and things in the sky (e.g., *In the Night Sky, Happy Birthday Moon, Good Night Moon, Papa Please Get the Moon for Me*).

Life Sciences

Learning Guidelines	Ideas for Learning Experiences
10. Observe and identify the characteristics and needs of living things: humans, animals, and plants. *Link to Characteristics of Living Things 2.1*	▪ observe and care for plants and small animals in the classroom (e.g., fish, guinea pig, salamander) to learn that living things grow, reproduce, and need food, air, and water. ▪ observe living creatures in their natural environment (e.g., ants, spiders, insects, worms, snails, birds) to learn about their habits. ▪ describe or represent first-hand observations about the characteristics, behavior, and growth of plants and animals (e.g., what happens when a plant dries out? How do fish/animals eat, move, behave, and grow? What detailed characteristic of a flowering plant do they observe?). ▪ visit an orchard at different seasons. ▪ visit a farm and help feed the animals. ▪ observe plants in various stages of growth (lima beans, when carefully opened, often show a tiny root and stem). *Note: Children's allergies need to be taken into account before introducing animals into the classroom or on a field trip.*
11. Investigate, describe, and compare the characteristics that differentiate living from non-living things. *Link to Characteristics of Living Things 2.2*	▪ observe and investigate the characteristics of living things such as plants, insects, birds, fish, amphibians, mammals in children's immediate environment (e.g., they breathe, move, grow). ▪ catch insects and place them in bug catchers, then using a magnifying glass to observe them. ▪ take walking trips to look for birds/animals/plants (preschool children need to focus on a single category at a time). ▪ classify living things children know on the basis of similarity in appearance and behavior. ▪ examine various kinds of plants and flowers and observing how their parts are the same or different.
12. Observe and describe plants, insects, and animals as they go through predictable life cycles. *Link to Characteristics of Living Things 2.3*	▪ monitor the life cycles (growth, development, reproduction, death) of plants and living creatures (e.g., insects, small animals, tadpoles, a butterfly garden). ▪ share photographs of themselves when they were babies and observe ways they have grown and changed. ▪ listen to age-appropriate fiction and non-fiction books that relate to life cycles. ▪ make a seed book with a picture of a plant on each page along with its distinguishing feature (flower, leaf, fruit or seed pod), and the actual seed encased in plastic. ▪ place pictures of the life cycle stages of an insect or animal in sequence. ▪ observe and describe the structures that plants and animals have for survival.
13. Observe and describe ways in which many plants and animals closely resemble their parents in observed appearance. *Link to Heredity 2.4*	▪ observe offspring of various kinds of animals (first-hand if possible, otherwise photographs or films of real animal babies/parents) and discuss how they are like or different from their parents. ▪ observe similarities and variations among individuals of the same species of plants/living creatures (e.g., are all the worms or caterpillars exactly alike? How are they different?). ▪ look for similarities and differences among groups of creatures (e.g., fin, fur, feathers, number of legs).
14. Describe or represent living things that inhabited the earth years ago, as children express interest. *Link to Evolution and Biodiversity 2.5*	▪ discuss things children have seen or heard related to fossils (e.g., a trip to a museum) when these concepts are meaningful to children's interest/experience. ▪ listen to age-appropriate stories about prehistoric creatures such as dinosaurs.

Living Things & Their Environment

Learning Guidelines	Ideas for Learning Experiences
15. Use their senses of sight, hearing, touch, smell, and taste to explore their environment using sensory vocabulary. *Link to The Senses 2.6*	▪ identify familiar materials inside sealed "smelling jars" with holes punched in the lids (e.g., orange rind, chocolate, grape juice, peppermint). ▪ match sounds from pairs of sealed "listening jars" filled with paper clips, rice, metal nuts, gravel. ▪ use a "feely box" to identify objects or match textures by touching without looking. ▪ listen to age-appropriate books related to the senses such as *My Five Senses* by Aliki. ▪ play with, describe, and compare materials such as various textures of fabrics, wallpapers. ▪ play in a sensory table filled with various materials (e.g., sand, water, snow, ice, mud, "oobleck"). ▪ fingerpaint or paint with shaving cream or liquid starch. ▪ stimulate the sense of touch by clicking fingers, tapping, slapping, stroking; touching textures in the environment (e.g., bricks, walls, gates, leaves, feathers, pets, furniture, fabric, toys). *Note: Teach children how to "sniff" safely by holding the container away from the face and bringing the hand toward the nose over the container.*
16. Observe and describe seasonal changes in plants, animals and their personal lives. *Link to Living Things and Their Environment 2.7*	▪ observe and document seasonal changes throughout the year in a neighborhood tree, or in birds or animals (e.g., watch birds as they come to the bird feeder in winter, or in the spring as they collect nesting materials; or watch squirrels collect nuts in autumn). ▪ follow a consistent route for nature walks in various seasons and collect evidence of seasonal changes (e.g., specimens of leaves, flowers, grass). ▪ discuss how seasons affect children's daily lives (e.g., clothes they wear or activities they participate in during the winter/summer). ▪ dress up in a variety of seasonal clothing in the dramatic play area.
17. Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light. *Link to Living Things and Their Environment 2.8*	▪ visit locally accessible forests, ponds, seashores or nature museums to observe the characteristics that help birds and animals thrive in their natural habitat (e.g., claws for climbing and digging, fins or webbed feet for swimming; wings for flying, spines for protection). ▪ create a habitat for children to observe creatures in their natural environment (e.g., fish in the aquarium, a worm or butterfly house indoors; ant farm; terrarium for snails/hermit crab; a bird or butterfly garden outdoors). ▪ listen to fiction and non-fiction books that describe various habitats (e.g., fish live in water; birds nest in trees). ▪ match pictures/models of animals with their habitat.

The Physical Sciences

Learning Guidelines	Ideas for Learning Experiences
18. Manipulate a wide variety of familiar and unfamiliar objects to observe, describe, and compare their properties using appropriate language. *Link to Observable Properties of Objects 3.1*	▪ describe the attributes of common objects (e.g., size, shape, color, weight, texture). ▪ sort, group, or classify objects in meaningful ways based on one or more properties. ▪ match familiar objects to their outlines or make crayon rubbings and identify them. ▪ make a "big book" about shapes and textures using materials such as feathers, metallic paper, leather. ▪ observe differences when painting using various tools (e.g., rollers, sponges, feathers) or surfaces (e.g., foil, freezer paper, sandpaper, three-dimensional objects). ▪ examine/compare the texture of materials during cooking projects (e.g., salt, flour, sugar).
19. Explore, describe, and compare the properties of liquids and solids found in children's daily environment. *Link to States of Matter 3.2*	▪ manipulate and describe materials such as water, sand, clay, play dough. ▪ explore ways materials can be changed by freezing/melting; dissolving (e.g., sugar crystals or gelatin in water); combining materials (e.g., earth + water = mud); physical force (e.g., pushing, pulling, pounding, stretching materials such as play dough or clay). ▪ experiment with "magic mixtures" of common materials (e.g., flour, baking soda, cornstarch, water, salt, vinegar, food color), observe the results, then describe their experiments to others.
20. Investigate and describe or demonstrate various ways that objects can move. *Link to Position and Motion of Objects 3.3*	▪ describe or demonstrate the various ways objects can move, such as straight line, zigzag, back and forth, round and round, fast and slow. ▪ use body movement to explore and label various positions/motions by (e.g., dancing, creative movement, and playground activities). ▪ manipulate, observe, compare, and describe the behavior of various objects on different surfaces or inclines (e.g., rolling objects such as small cars down ramps covered with different materials). ▪ respond to oral and visual cues (e.g., move your arms back and forth, slowly/quickly).
21. Explore and describe various actions that can change an object's motion such as pulling, pushing, twisting, rolling, and throwing. *Link to Position and Motion of Objects 3.4*	▪ try different ways of moving various kinds of objects such as cotton balls, corks, feathers, and scarves. ▪ experiment with moving a variety of objects such as rolling toy vehicles, or spinning tops on different surfaces and inclines. ▪ respond to verbal prompts related to movement of objects (e.g., roll the ball, twist the lid).
22. Experiment with a variety of objects to determine when the objects can stand and ways that objects can be balanced. *Link to Position and Motion of Objects 3.5*	▪ play with various kinds of blocks (e.g., foam, cardboard, wood, hollow, waffle blocks, building panels) to make constructions of various sizes. ▪ use a simple balance scale. ▪ use body movement to explore balance (e.g., using a balance beam or board). ▪ manipulate various kinds of concrete objects while observing how they balance and how changes in position or weight will impact balance. ▪ explain or demonstrate ways objects can/cannot stand or balance.

Technology & Engineering

Learning Guidelines	Ideas for Learning Experiences
23. Explore and describe a wide variety of natural and man-made materials through sensory experiences. *Link to Safe and Proper Use of Materials and Tools 1.1, 1.2*	▪ feel and use a variety of natural (e.g., wood, cotton, fur, wool, stone, leather) and human-made materials (e.g., plastic, styrofoam, paper) to learn their characteristics and capabilities. ▪ talk about which materials are natural and which are human made. ▪ construct structures with various materials to determine which do/don't work to achieve the desired purpose (e.g., glue, tape; paper, cardboard, foam, plastic, wood; straws, spools). ▪ express hypotheses about why certain materials are/are not appropriate for making various objects (e.g., "What is the table made of? Why is it made of wood and not styrofoam?").
24. Demonstrate and explain the safe and proper use of tools and materials. *Link to Safe and Proper Use of Tools and Materials standard 1.3*	▪ invent and construct simple objects or structures using common tools and materials in a safe manner (e.g., wood, glue, scissors, rulers, pencils, sandpaper, hammer, etc.). ▪ describe or demonstrate the reasons for wearing goggles or rules for safe use of tools or materials.
25. Explore and identify simple machines such as ramps, gears, wheels, pulleys, and levers through play experiences. *Link to Design 2.1*	▪ play with ramps and vehicles in the block area; pulleys in the sand table. ▪ play with manipulative toys that use gears. ▪ construct something that meets their needs (e.g., use building panels to construct a fort to sit in; a parking garage for vehicles out of blocks). ▪ examine a common machine (e.g., hand food grinder) and discuss what it does and how it works. ▪ find examples of simple machines such as ramps, wheels, gears, pulleys, and levers in the environment.
26. Observe and describe ways that animals, birds, and insects use various parts of their bodies to accomplish certain tasks and compare them to ways people would accomplish a similar task. *Link to Framework: Engineering Design 2.2*	▪ observe the ways animals use parts of their bodies compared to humans (e.g., some birds have a hooked bill that they use to open seeds; a person might use a nutcracker to accomplish a similar task; an animal might tear food apart with its teeth; a person would use a knife and fork). ▪ act out animal behaviors (e.g., the way a bird or squirrel eats nuts/seeds; the way a dog laps water).

Guiding Preschool Learning in History and Social Science

At the early childhood level, learning in history and social science is built on children's experiences in their families, school, community, state, and country. Preschoolers can explore beginning concepts of history and social sciences with questions that are important to their lives such as "Who are the members of my family?" "Where do we live? Who are our neighbors?" Teachers should be alert to and ready to build on children's immediate interests. Meaningful topics around social studies often emerge spontaneously out of children's play and conversations, and teachers can provide materials and resources to help children further explore their interests or questions.

One purpose of the preschool curriculum is to help children to acquire the knowledge, skills, and attitudes needed in community life, as they learn to cooperate, share, and respect the rules of their classroom. They can also learn about the basis for a democratic society when they participate in simple decision-making for the group.

A second purpose of the preschool curriculum is to begin the development of their civic identity. Children listen to stories about the people and events we celebrate in our national holidays and learn why we celebrate them. They also become familiar with our national symbols. Even before they can read, young children can be exposed to maps and globes, pictures of the President, and the American flag. Holidays should be presented in ways that are meaningful to three- and four-year olds. Holiday celebrations should be reserved to a day or two before, and after the actual date, unless the holiday is tied into a more complex theme or project.

Learning Guidelines	Ideas for Learning Experiences
1. Discuss and identify the order of daily routines. *Link to Skills & Concepts 1*	▪ describe what comes first, next, and last in meaningful contexts such as daily routines (e.g., "First we wash our hands; then we sit down; then we open our snacks." "First we have circle; then choice time; then snacks."). ▪ use photographs as sequencing cards to describe children's own daily routines and events such as field trips (describing what came first, next, last). ▪ arrange illustrations from familiar stories in order of occurrence.
2. Discuss and use vocabulary related to time in relevant activities. *Link to Skills & Concepts 2 and Learning Standard 2*	▪ create timelines to represent events in meaningful experiences using words related to time (e.g., now, long ago, before, after, morning, afternoon, night, today, tomorrow, yesterday, last or next week, month, year) along with drawings, photographs or objects. ▪ count down days to an event with concrete materials such as removing a link on a paper chain. ▪ develop a sense of personal history by examining evidence of change over time (e.g., photographs of themselves; toys, articles of clothing), arranging them chronologically and describing their growth, development, and preferences. ▪ look at photographs of their parents and grandparents as children. ▪ listen to age-appropriate stories about things that happened a long time ago. ▪ measure time in visual or auditory ways (e.g., setting a timer, using an hourglass) for daily routines such as cleaning up, transitions. ▪ listen to age-appropriate books about the passage of time, morning and night. ▪ observe and document changes that take place over time in their immediate environment.

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Learning Guidelines	Ideas for Learning Experiences
3. Identify and describe cause and effect as they relate to personal experiences and age-appropriate stories. *Link to Skills & Concepts 3*	▪ relate cause and effect to meaningful personal experience (e.g., explaining what provoked/motivated an event in the classroom or playground). ▪ extract cause and effect from stories read aloud (e.g., explaining reasons why events occurred in stories read aloud, or why characters felt the way they did). ▪ describe how personal experiences/events might have had different outcomes through dramatization, puppetry, representations. ▪ listen to age-appropriate stories that describe the consequences of choices by the characters (happy, unhappy, unexpected) and talk about or dramatize how outcomes might have been different. ▪ predict a range of possible outcomes to real events or those in stories based on changes in conditions/decisions ("what might happen if...?").
4. Engage in activities that build understanding of words for location and direction. *Link to Skills & Concepts 4 and Learning Standards 3 & 4*	▪ take walking trips around the neighborhood, making note of geographic features, landmarks. ▪ listen to and use locational terms in body movement activities (e.g., up, down, near, far, left, right, straight, back, behind, in front of, beside, above, below, between). ▪ participate in a variety of experiences that build/reinforce concepts related to directionality (e.g., manipulating blocks/vehicles on a "road rug" or class-made map; moving their bodies through obstacle courses). ▪ talk about and dramatize ways they travel from one place to another (e.g., a bus, car, train, or plane trip with road maps, photographs or brochures of places to visit, souvenirs). ▪ talk about important personal information such as street address, town, state, and country where they live.
5. Construct and describe simple maps of their immediate neighborhood. *Link to Skills & Concepts 5 and Learning Standard 4*	▪ create representations of their classroom, school building, playground, neighborhood, home (e.g., simple maps, three-dimensional models, photographic displays, chalk drawings on the playground, block buildings). ▪ describe features of familiar places (buildings, stores, places of business) shown in children's representations. ▪ use toy vehicles to follow their own maps and describe the features (e.g., "Can you drive to the post office? The fruit stand? What do you see along the way?"). ▪ identify common signs and symbols (e.g., traffic signs, street signs, traffic lights, street and highway markers) and discuss their purpose.
6. Discuss examples of rules, fairness, personal responsibilities, and authority in their own experiences and in stories read to them. *Link to Skills & Concepts 6*	▪ talk about why we need classroom and playground rules. ▪ take part in developing group goals and rules (e.g., how they will get ready for a walking field trip, what needs to happen at clean-up time). ▪ talk about the consequences of negative behavior. ▪ discuss why there may be different rules in different places (e.g., school rules may be different from rules at home). ▪ discuss who are appropriate authority figures in various settings. ▪ assume responsibility, choice, and leadership in age-appropriate ways (e.g., self-help skills, classroom duties). ▪ discuss what could happen when children are not considerate of one another when such situations arise.

Learning Guidelines	Ideas for Learning Experiences
7. Talk about the qualities we value in a person's character such as honesty, courage, courtesy, willingness to work hard, kindness, fairness, trustworthiness, self-discipline, loyalty, and personal responsibility. *Link to Learning Standard 5, also Health 9.2*	▪ listen to and discuss age appropriate stories with characters that make a difference to others, or situations in which characters take care of each other. ▪ discuss alternative outcomes of stories if the characters had different traits (e.g., honesty/dishonesty). ▪ identify positive characteristics observed in classmates' behaviors in daily routines. ▪ engage in dramatic play to act out their ideas, understandings, and personal experiences related to human character and relationships.
8. Discuss classroom responsibilities in daily activities. *Link to Learning Standard 6, also Health 5.3, 5.4*	▪ take responsibility for simple classroom tasks such as watering plants, setting tables, feeding fish etc. ▪ listen to age-appropriate stories that illustrate shared responsibility. ▪ take responsibility for cleaning up after their own activities.
9. Discuss roles and responsibilities of family or community members who promote the welfare and safety of children and adults. *Link to Learning Standard 6*	▪ talk about and dramatize roles of family members (e.g., create a chart listing each child's family members, and the jobs each person does such as shopping, cooking, cleaning, reading bedtime stories, washing clothes, taking out the trash, mowing the lawn, etc.). ▪ visit or be visited by community helpers such as police officers, firefighters, doctors, dentists, etc. ▪ set up dramatic play area with uniforms and accessories (e.g., hats, lunch boxes, brief cases, boots, tool kits) that promote community roles such as firefighter, postal worker, librarian. ▪ contribute to class-made books or lists of facts about various community roles and responsibilities.
10. Observe and discuss the various kinds of work people do outside and inside their homes. *Link to Skills and Concepts 7, Learning Standard 8*	▪ visit or invite visitors to talk about various kinds of work people do, including the work they do at home (e.g., family members, and local employers). ▪ visit various places of work in the local community to learn the names of various jobs and observe first-hand the kinds of work people do. ▪ listen to age appropriate stories about different kinds of jobs and what is required to perform them.
11. Observe, discuss, and dramatize basic economic concepts such as buying and selling, producing, and consuming. *Link to Skills and Concepts 8, and Learning Standard 10*	▪ make purchases at a store (e.g., foods for a cooking project; paper goods for snacks). ▪ take neighborhood trips to learn about local jobs and products (e.g., compare bread from a local baker with bread from the supermarket; link with stories such as *Bread, Bread, Bread*). ▪ create/dramatize roles that include money, buying and selling (e.g., set up a store, restaurant, doctor's office, hair salon with accessories such as play money, cash register, order/receipt book; forms; old checkbooks/credit cards, telephones). ▪ give examples of how family members, friends, or acquaintances use money directly or indirectly (e.g., credit card or check) to acquire things they need/want. ▪ listen to age-appropriate stories that relate to economic concepts (e.g., *Jack & the Beanstalk; Uh-Oh It's Mama's Birthday; A Chair for My Mother; Epomynandes*). ▪ talk about what people do with the money they earn from working. ▪ conserve materials and goods in meaningful ways (e.g., save paper scraps to use in new projects; use collections of recycled materials for collage and construction).

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Learning Guidelines	Ideas for Learning Experiences
12. Observe some U.S. national holidays and discuss how and why we celebrate them. *Link to Learning Standard 1*	▪ listen to age-appropriate stories about national figures and holidays. ▪ participate in developmentally appropriate and meaningful events and activities related to national holidays such as Columbus Day, Thanksgiving, Martin Luther King, Jr. Day, Presidents' Day, and Independence Day.
13. Observe or listen to important American symbols including the American flag and its colors and shapes; the melody of the national anthem; the picture and name of the current President, and the words of the Pledge of Allegiance. *Link to Learning Standard 7*	▪ play games that build recognition of colors and shapes in the flag. ▪ discuss appropriate ways to use and care for the American flag (e.g., invite a Boy/Girl Scout troop to demonstrate proper care of the flag). ▪ sing songs about the flag; march while holding the flag. ▪ use red, white and blue paint or crayons to make representations of the American flag. ▪ listen to the Pledge of Allegiance recited by staff and adults. ▪ see photographs and listen to the name of the President of the United States.

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Guiding Preschool Learning in Health Education

In the preschool years, brain and body development are critically linked. It is through physical activity and body movement that the brain internalizes the foundations of laterality (left, right), directionality (up, down, in, out), and position in space (over, under, behind). These concepts are critical to mathematical thinking as well as to beginning reading and writing. They lay the basis for the child to "see" how letters are formed and put together in patterns called words, and to translate this understanding into symbols on paper in the form of writing. Children should be encouraged to engage routinely in block building, or other spatial and manipulative activities, as well as in music, art, dramatic play, and language activities, in order to stimulate both sides of the brain.

At the preschool level, there should be strong emphasis on both gross and fine motor development activities. Developing the large muscles will give support to the small muscles in the hands and fingers. Outdoor play should be an integral part of the daily curriculum, all year and in all seasons, and should be viewed as an opportunity for learning. Activities that promote sound physical development help children develop both skills and confidence in using their bodies and the equipment they play with.

Socially, preschool children are moving into a wider circle of relationships with peers and with adults other than family members. Many children need to learn how to play in a group setting. Three-year-olds are egocentric and have a hard time waiting for a turn. Four year olds who have had some experience in groups may be aware of group expectations but still need to be reminded of rules and routines. Preschool children need guidance to develop the ability to share, take turns, lead, follow, and be a friend.

Emotionally, the young child's growing independence involves taking gradual steps away from the security of an adult's presence and protection and fulfilling the drive toward separateness and individuality. Preschoolers' drive for independence needs to be supported by adults who set reasonable limits for them and give them security. The foundations for children's confidence in themselves, their relationships with other children, as well as their trust in the adults who teach and care for them, are influenced, if not established, in early childhood. Children need to feel safe in order to feel free to explore, and they need meaningful feedback from significant adults who delight in their successes and reassure them in their failures. As they begin to exercise independence, it is important to allow children sufficient time to work on tasks until they are satisfied with the results. These guidelines will help preschool teachers address these needs.

Note: The guidelines for physical development, neurosensory development, social/emotional development, and health education do not align directly with the Health Framework or reflect its sections. Some guidelines have been added or expanded for social/emotional development, gross/fine motor development, and neurosensory development because of their particular significance at the preschool level. Others have been incorporated into other content areas (e.g., the Arts or History and Social Science) in an effort to reduce repetition.

Physical Development

Learning Guidelines	Ideas for Learning Experiences
1. Listen to and use appropriate language describing the names and functions of parts of the human body. *Link to Growth and Development 1.1, 1.2*	• play games and respond to recordings that ask children to identify and move various parts of the body (e.g., touch your nose, wiggle your arm, tap your foot). • make representations such as drawings, paintings, collages about parts of the body. • create life-size drawings of their own bodies and label various parts. • examine a model of a skeleton or compare the skeletons of different creatures (e.g., "fingers" of a bat, a human, a horse etc.). • listen to age-appropriate books that use the scientific names of some parts of the body and various body systems.

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Physical Development

Learning Guidelines	Ideas for Learning Experiences
2. Build body awareness, strength, and coordination through locomotion activities. *Link to Growth and Development 1.1, 1.2*	▪ use various locomotor skills (walking, running, galloping) to move from one place to another (e.g., across the mat; across the playground). ▪ balance like a flamingo or crane standing on one leg. ▪ jump in a series of "baby", "giant", "elephant" steps or frog hops; pretend to be various jumping creatures (rabbit, kangaroo, frog, grasshopper); jump to music or the beat of a tambourine; jump along footprints cut out of contact paper. ▪ hop on one leg then the other, or move forward with their hops. ▪ combine large muscle movements with equipment (e.g., riding a tricycle, using a slide or swings). ▪ respond to movement challenges (e.g., move across the mat backwards, then find 5 or 6 different way to move across it; walk around holding a beanbag on their head, shoulder, elbow). ▪ engage in activities that involve rocking, swinging, rolling, spinning, jumping, being turned upside-down (research indicates that such stimulation is critical to attention, memory, and sensory development).
3. Discuss various aids and accommodations used by people for the activities of daily life. *Link to Growth and Development 1.3*	▪ talk about various aids and accommodations used by people with disabilities and what they help them do (e.g., braces, ramps, wheelchairs, crutches, and walkers). ▪ listen to age-appropriate stories about people with disabilities. ▪ tour the building, locating handicap accessible doorways and other accommodations. ▪ role play some conditions that require aids and accommodations and discover the difference in using materials and equipment. ▪ play with dolls with physical representations of disabilities.
4. Build awareness of directionality and position in space. *Link to Physical Activity and Fitness 2.2*	▪ play games such as "follow the leader" and "Simon says" responding to directional and positional words (up, down, over, under, top, bottom, outside, behind). ▪ maneuver through obstacle courses (e.g., go up the steps, slide down the slide, go around the cube, through the tunnel). ▪ move and place objects in various positions (e.g., "put the ball beside the box; over your head; under your legs"). ▪ move their bodies at various levels (high/low) and pathways (straight, curve, zigzag), for example, stand and walk on a balance board or beam, or walk along a zigzag or curved chalk line outdoors. ▪ throw and catch objects (catching is more difficult) such as beanbags, rings, balls of yarn, sponge balls of varying size); aim at a target (basket, hoop, carton).
5. Use both sides of the body to strengthen bilateral coordination. *Link to Physical Activity and Fitness 2.1*	▪ jump with both feet over a line or over a "river" created with two pieces of masking tape (the obstacle can be made progressively wider as children gain skill. ▪ jump over a block or other raised object. ▪ lift objects with both hands. ▪ push a wheelbarrow or doll buggy with both arms. ▪ use both arms simultaneously to draw big circles on a blackboard. ▪ carry things with both arms (e.g., a tray full of paper cups, an armful of leaves).

Learning Guidelines	Ideas for Learning Experiences
6. Alternate the left and right sides of the body and cross the midline of the body. *Link to Physical Activity and Fitness 2.1*	▪ walk, run, crawl and creep (e.g., pretend to be worms, snakes, lizards, beetles, caterpillars or alligators from familiar stories; crawl to the beat of music). ▪ climb steps, low ladders, cargo nets, and climbers using alternating movements of legs and arms. ▪ progress along an overhead ladder or pedal a tricycle. ▪ bounce a ball with each hand or transfer objects from one hand to the other repeatedly (e.g., a ball or beanbag). ▪ use sweeping motions that extend from one shoulder to the other (e.g., paint at an easel, draw on a large chalkboard). ▪ follow a path of criss-cross footprint patterns. ▪ transfer objects between two containers placed at opposite sides of the body.
7. Build upper body strength and stability to gain controlled movement of shoulders. *Link to Physical Activity and Fitness 2.1*	▪ use materials on vertical surfaces (e.g., easels, chalkboards, Lite Brite®). ▪ pour water, sand, etc. from a plastic milk jug, pitcher or watering can into several smaller containers (within child's strength limitation). ▪ carry objects at arm's length (e.g., a marble or potato in a spoon); carry objects such as large, hollow blocks. ▪ sit, kneel, or lie on a scooter boards (a 12" board with casters), and propel it using arms or legs, holding head and upper body erect (this encourages upper body strength). ▪ hang with both arms, lifting feet off the ground (e.g. holding onto a trapeze bar, monkey swing, tire swing, or "Tarzan" rope; using an overhead ladder). ▪ push objects in a wheelbarrow.
8. Strengthen hand grasp and flexibility *Link to Physical Activity and Fitness 2.1*	▪ use a hand hole punch on materials of increasing thickness to punch as many holes as they are able; try to constantly better their own record. Move to heavier weight paper as strength increases. ▪ manipulate modeling materials of varying consistency (e.g., play dough, clay, plasticine® or Theraplast®). ▪ squeeze squirt bottles, turkey basters, or syringes in the water table or use them to fill small containers. ▪ use a plant sprayer to spray plants or mix water with food coloring to spray snow. ▪ pinch clothespins and bulldog clips of various strengths around a paper plate. ▪ use a garlic press to force play dough through the grate. ▪ play with a variety of manipulative toys (e.g., Tinkertoys®, Legos®, Bristle Blocks®, pop beads).
9. Use thumb/forefinger in pincer grasp. *Link to Physical Activity and Fitness 2.1*	▪ place small objects into a container one by one (e.g., cotton balls, miniature pompoms, Cheerios®, beans, small marshmallows). ▪ use tweezers, strawberry hullers to pick up objects. ▪ place small pegs in a pegboard. ▪ create designs with stickers, Colorforms® ▪ use eyedroppers to squeeze drops of colored water onto absorbent paper or coffee filters. ▪ draw with small pieces of crayon or chalk. ▪ roll play dough into tiny balls (peas) using only the finger tips.

Learning Guidelines	Ideas for Learning Experiences
10. Use a variety of tools and materials to build grasp-and-release skill. *Link to Physical Activity and Fitness 2.1*	▪ use tongs, barbecue tools to move objects from one container to another. ▪ use spring-action scissors that assist child in opening/closing. ▪ use 4-hole teacher's "helper" scissors if needed. ▪ use sharp, blunt scissors with small finger holes and short blades. ▪ use scissors that can be used right or left-handed. ▪ use scissors that cut fancy patterns. ▪ grasp scissors correctly with adult guidance (thumb and middle finger in the handles of the scissors, and the index finger outside [under] the blades to stabilize). ▪ cut materials with a range of resistance (e.g., tissue paper, wallpaper, fabric, cardboard). ▪ go through a progressive series of cutting skills including unstructured snipping (e.g., snipping pieces of plastic straws or strips of paper); cutting within a "track," and cutting on a line and stopping at a marked point.
11. Build finger dexterity. *Link to Physical Activity and Fitness 2.1*	▪ flip coins from "heads" to "tails." ▪ link paper clips to make necklaces. ▪ use dressing frames (snapping, buttoning, zipping). ▪ string beads, straw segments, paper clips, Cheerios®. ▪ manipulate keys in locks of varying sizes. ▪ use one finger at a time in fingerplays (e.g., *Where is Thumbkin?*). ▪ create puppet shows with finger puppets. ▪ play with a toy piano, typewriter, or computer keyboard. ▪ use thumb and forefinger to spin a top.
12. Use eye-hand coordination, visual perception and tracking, and visual motor skills in play activities. *Link to Physical Activity and Fitness 2.1*	▪ play with wind-up toys. ▪ play with a pounding board, typewriter, or keyboard. ▪ trace around simple stencils and templates. ▪ use lacing cards or do simple weaving. ▪ use pattern cards for pegs, beads or parquetry blocks. ▪ play with materials that train the eye to move from left to right (e.g., a marble roll track, use a toy car or truck to follow a road on large mural paper). ▪ follow a left-right movement using an Etch-a-Sketch®; dry-erase board, sand, paints. ▪ follow simple mazes using crayons or markers from a left start point to a right end point. As skills increase, more complex mazes can weave from left to right or curve.

Learning Guidelines	Ideas for Learning Experiences
13. Discuss nutritious meals and snacks and the difference between junk food and healthy food. *Link to Nutrition 3.1*	▪ grow vegetables in a garden. ▪ have a food-tasting party with samples of a wide variety of nutritious foods, especially those that may be unfamiliar at home, or "snacks" from other cultures. ▪ help to prepare a variety of healthy snacks and meals, and talk about ingredients (e.g., apple sauce, waffles, fruit salad, sandwiches, cranberry relish, scrambled eggs, vegetable soup). ▪ create books, collages or displays with pictures of healthy/unhealthy foods, or a picture menu of health food choices. ▪ talk about the nutritional value of various foods (i.e., milk is good for strong bones and teeth, vegetables provide vitamins, breads a cereals provide fiber) and the relationship between a healthy diet and overall health and fitness. ▪ use replicas of healthy foods in the dramatic play area with themes of cooking, grocery store, or restaurant. ▪ create a recipe book including foods made in class and favorite recipes shared by families.
14. Practice personal hygiene and safety measures. *Link to Nutrition 3.2, 3.6, 3.7*	▪ follow consistent routines regarding washing hands and utensils before and after preparing food and eating. ▪ talk about health and safety rules regarding food preparation and eating (e.g., not sharing food or utensils; not sneezing/coughing near food). ▪ learn how to use cutting tools safely. ▪ help to clean surfaces before and after eating with appropriate cleaning solutions.
15. Discuss gender and growth in age-appropriate ways. *Link to Reproduction & Sexuality 4.2, 4.3*	▪ talk about young animals and humans in age-appropriate terms (e.g., babies, puppies, kittens, etc.) and note that we all start out as babies. ▪ talk about the differences between boys and girls, boys/men, girls/women as questions arise. ▪ talk about the constancy of gender throughout life (e.g., boys grow up to be men, girls to be women; girls will be the mommies, boys will be the daddies).

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Social & Emotional Health

Learning Guidelines	Ideas for Learning Experiences
16. Recognize and describe or represent emotions such as happiness, surprise, anger, fear, sadness. *Link to Feelings and Emotions 5.1, 5.3*	• listen to/discuss books about emotions and respond to situations in stories in that evoke emotions (e.g., "How is he feeling?") • identify emotions in photographs of children and adults. • reflect on personal experiences that evoked strong emotions. • talk about ways to express emotions without harming themselves, others, or property (e.g., dancing or exercising until out of breath; using pounding toys; manipulating play dough, talking to an adult). • create drawings, paintings, collage, a class book about emotions. • use stories, fingerplays, and songs to illustrate emotions (e.g., sing "If you're happy and you know it" including "angry, scared, sad," suggesting gestures/expressions to illustrate feelings). • act out powerful emotions (fear, anger) through dramatic play.
17. Talk about ways to solve or prevent problems and discuss situations that illustrate that actions have consequences. *Link to Decision Making 5.2, 5.5*	• use a variety of methods (e.g., dramatization, painting, collage, and narrative) to represent solutions to everyday problems ("What could you do if...?"). • listen to stories that illustrate negotiation and conflict resolution strategies (e.g., *Best Friends Think Alike* by Lynn Reiser; *Hot Hippo* by Mwenye Hadithi). • retell stories of how they successfully solved a problem. • predict possible consequences of their own actions or decisions in everyday situations or the actions/decisions of characters in stories. • talk about things they have seen that scare them (e.g., danger, conflict, or violence in the home, school, or community) and where they can go for assistance (e.g., counselors, neighbors, law enforcement, clergy, and members of faith-based groups.
18. Talk about how people can be helpful/hurtful to one another. *Link Violence Prevention 11.1*	• listen to age appropriate stories about relationships, helpful/hurtful words or actions. • talk about personal experiences of when someone has been either helpful or hurtful. • act out what can be done if someone hurts your feelings. • predict what might happen next in various situations.
19. Practice independence and self-help skills. *Link to Identity 5.3*	• take care of their own needs with the support of adults (e.g., wash hands independently at accessible sinks; handle toileting; dress/undress themselves; hang up clothing). • serve themselves snacks and meals (e.g., count out certain number of crackers; pour liquids into cups from small lidded pitchers). • manipulate fasteners commonly found on clothing (e.g., buttons, snaps, zippers, laces).
20. Describe members of their family and discuss what parents do for their children to keep them safe and healthy. *Link Functions and Purpose of Families 6.1, 6.2, 6.3, 6.4*	• create representations of family members and their roles (e.g., family portrait, collage, chart). • use vocabulary related to titles of various family members (e.g., aunt, uncle, sister, brother, grandmother, grandfather, grandson, grand-daughter, cousin). • use props and costumes to act out family roles individually or in small groups in dramatic play. • identify things parents do for their children in stories and personal experience. • listen to stories about all types of families.

Safety & Health Care

Learning Guidelines	Ideas for Learning Experiences
21. Discuss strategies to prevent injury and illness, control the spread of disease, and promote cleanliness. *Link to Disease Prevention & Control 8.1, 8.3*	▪ listen to stories about germs and disease, immunization, preventive doctor's visits. ▪ create representations of germs and discuss strategies to fight them. ▪ dramatize dressing appropriately for the weather (e.g., choosing what to wear on a rainy day/snowy day from a box filled with various items of clothing). ▪ talk about or invite a health care practitioner to talk about illness, and strategies/habits for disease prevention (e.g., covering mouth/nose when sneezing and coughing, disposing of tissues properly; taking medicines, visiting the doctor, immunizations). ▪ discuss risks, consequences and prevention strategies related to health and safety (e.g., if you go to sleep late, you'll be tired; if you don't wear your coat you'll be cold; if you run in a crowded space you may bump into something and get hurt; using sunscreen, taking vitamins, using rubber gloves). ▪ talk about the reasons for safety rules (e.g., wearing a seat belt). ▪ learn the universal symbol for poison.
22. Talk about the common symptoms of illness and injury and what they should do when they hurt or don't feel well. *Link to Signs, Causes, and Treatment 8.2*	▪ listen to age-appropriate stories about illness, doctors, hospitals. ▪ dramatize experiences related to illness and health care (e.g., set up a hospital or doctor's office with props including stethoscope, forms, bandages). ▪ make a get-well kit or card for a sick or injured friend or relative. ▪ role play through puppets, dolls.
23. Discuss tooth care and dental health including brushing, flossing, and healthy foods. *Link Health Maintenance 8.4*	▪ invite a dentist or dental hygienist to visit the program or visiting a dentist's office to see a demonstration of tooth brushing and tooth care. ▪ create a chart of foods that build healthy teeth. ▪ brainstorm all the ways teeth are important (e.g., appearance, chewing, talking). ▪ listen to stories about teeth, losing teeth. ▪ practice brushing/flossing after snack or lunch.
24. Discuss rules for safety in a variety of settings including fire safety, weapons safety, bus safety, seat belt use, playground safety, as well as safety at home and in the community. *Link to Safety and Injury Prevention 9.1, 9.3*	▪ visit or be visited by safety officials to explain safety rules in various situations. ▪ share stories about when children have been hurt and what could have been done to prevent it. ▪ take walking trips to observe traffic signals, signs, and safety rules for crossing streets. ▪ set up streets and crosswalks in the classroom to practice safety. ▪ explore ways to reduce hazards and avoid accidents in the classroom, on the playground, at home and in the community (e.g., shopping cart safety; Halloween safety, around bodies of water). ▪ role play safe play behavior in various situations. ▪ dramatize what to do and who to go to for help in case of a fire or an accident (e.g., stop, drop, and roll). ▪ make a mural or chart of things that are and are not safe to touch.

Learning Guidelines	Ideas for Learning Experiences
25. Talk and listen to stories about safe, unsafe, and inappropriate touch and ways to protect themselves. *Link to Self-protection standard 9.4, 9.5 (see History & Social Science #7 for link to 9.2)*	▪ talk about "good touch/bad touch" and that some parts of their bodies are private (e.g., those covered by a swimsuit). ▪ discuss that "hands are for helping not hurting." ▪ review strategies for protecting themselves (e.g., assertive language and behavior, refusal skills). ▪ develop a "support system" for help or information (e.g., parents, relatives, teachers, counselors, clergy, police). ▪ listen to age-appropriate stories about unsafe/inappropriate touch. *Note: Discussions should be informative but not make children overly fearful.*
26. Talk about what to do when someone gets hurt and the rules for universal precautions (do not touch body fluids; wash hands after touching body fluids). *Link to Emergency Intervention 9.6, 9.7*	▪ role play how to wash hands. ▪ role play how to get help if they see or are involved in an emergency situation (e.g., tell an adult; how to call 911). ▪ visit nurse's office for demonstration of simple first aid procedures (e.g., boo-boo bunny, ice pack).
27. Identify and distinguish between substances that are safe to be taken by mouth. *Link to Effects on the Body 10.1*	▪ become familiar with the poison symbol. ▪ talk about safety/prevention measure related to poisons. ▪ talk about appropriate/inappropriate use of medications (e.g., show some candies that look like pills and vice-versa). ▪ participate in programs such as *Mr. Yuck* (books, puppets, games, music, group discussion). ▪ brainstorm and make a list of safe, unsafe, and questionable substances. ▪ share information about substance abuse with families (e.g., young children may begin to understand the concept of "too much" by trying to carry things that are too heavy, wear clothes that are too big).
28. Describe the purpose of medicines and how they can be used or misused, and what to do in an emergency. *Link to Effects on the Body standard 10.2, 10.4*	▪ talk about medicines and chemical substances that people use or abuse. ▪ see photographs of medicines commonly found in homes. ▪ invite health care professionals or pharmacists to talk about safety and medicines. ▪ dramatize strategies to handle emergencies (dial 911; give name, address and telephone number). *Note: Many preschool children will not be able to produce all these elements of information.*
29. Talk about some basic ways they can keep their environment clean or take care of it. *Link to Ecological Health 13.1, 13.2, Community & Public Health14.2*	▪ discuss why we need a clean/safe environment and what they can do to make it clean. ▪ walk around the yard/neighborhood and examine things that do /do not belong there; identifying things that have been left by people. ▪ take turns leading small groups to pick up waste paper or other things lying around and throw them away or put them in the right place.

Guiding Preschool Learning in the Arts

The goal of arts education for young children is to develop and sustain the natural curiosity, expressiveness, and creativity that very young children often display. Arts education begins with a foundation that emphasizes exploration, experimentation, and engagement of the senses, and discussion as paths to understanding. Young children use the arts to explore sensation and their understanding of real and imagined events. They try to find out all they can about the expressive qualities inherent in different forms of communication. Through what they choose to dramatize, sing, or paint, children let others know what is important, trivial, appealing, or frightening in their lives. Depictions of faces and forms develop fairly predictably in young children. Although "realistic" products should not be the goal, preschool-age children can learn some basic techniques and begin to develop aesthetic preferences.

A portfolio of children's artwork can be started at the preschool level, to be expanded throughout the early elementary years to produce a wealth of evidence about a child's profile of emerging artistic preferences and strengths. The arts also often serve as a vehicle for children to demonstrate their understanding in other content areas, and teachers should be alert to children's artwork as potential evidence of learning in mathematics, science, and other subject areas.

To promote challenging and stimulating art experiences, teachers should be able to say "yes" to the following four questions:

- Are children able to experiment freely with art materials and explore what happens?
- Will each child's work look different from the others?
- Is the goal of the activity the children's enjoyment rather than a product to please adults?
- Will the child's effort lead to something that is satisfying to the child at his or her level of development?

Movement & Dance

Learning Guidelines	Ideas for Learning Experiences
1. Explore activities and vocabulary related to movement, balance, strength, and flexibility. *Link to Movement Elements & Dance Skills 1.1, 1.2*	▪ experiment with locomotor movements that move the body from one place to another including crawling, creeping, walking, running, jumping, hopping, galloping, sliding, rolling, climbing). ▪ try out non-locomotor movements while standing, sitting, kneeling, or lying (e.g., bending, turning, twisting, rolling, stretching, shaking, curling, swinging, rocking, swaying). ▪ walk on a low balance board or a real or imaginary tightrope (e.g., a line of masking tape, string or chalk on the floor or playground), and as skills increase try moving sideways, backwards. ▪ push, pull, or lift heavy objects or equipment (e.g., a wagon, wheelbarrow). ▪ use large outdoor equipment (e.g., climb a ladder or jungle gym, hang from a trapeze).
2. Respond to a variety of musical rhythms through body movement. *Link to Movement Elements & Dance Skills 1.3, Reading and Notation 2.1*	▪ move to many different styles of instrumental music (e.g., classical, jazz, country and western, disco, swing, rhythm and blues). ▪ play "statues" and "freeze" when the music stops. ▪ explore contrasts in force (hard/soft; strong/light) such as stamping, clapping, tapping feet; moving softly "like a feather floating;" being stiff like robots or floppy like rag dolls.
3. Participate in simple sequences of movements and dance to various kinds of music. *Link to Movement Elements & Dance Skills 1.6, 1.7, 1.8, Choreography 2.2, 2.3, 2.4*	▪ imitate simple (2 or 3 step) movement sequences (e.g., "tap, tap, tap your foot, clap, clap clap your hands"). ▪ change one part of a simple movement sequence (e.g., from tap, tap, clap to tap, tap, stamp). ▪ sing songs that contain sequences of body motions (e.g., *Head, Shoulders, Knees and Toes*). ▪ play traditional games and dances (e.g., *Loobie Loo, Hokey Pokey*).

Learning Guidelines	Ideas for Learning Experiences
4. Express themselves freely through movement. *Link to Movement Elements & Dance Skills 1.9, Choreography 2.1, Dance as Expression 3.3, Performance in Dance 4.2*	• move to music at their own pace and style. • invent original ideas through dance, movement, or games such as *What Can You Do Punchinello?* or challenges such as "Shake something–shake something different." • invent various ways to move from one point to another (e.g., across the mat or playground).
5. Use props to explore space and movement. *Link to Movement Elements & Dance Skills 1.4, 1.5; Choreography 2.5*	• use balls, hoops or beanbags to explore the concepts of over, under, around, in front of, behind. • use carpet squares, hoops, masking tape to limit personal space and move around without touching others. • explore how far can they reach up/down, side to side, in front of and behind them. How many ways can they move their arms in their space? • experiment with various ways to move scarves, streamers, or ribbons (e.g., moving them in small/large circles, swinging, zig-zag, making various shapes in the air, etc.). • jump in and out of hoops; step in spaces of a ladder placed on the floor. *Note: Safety factors should always be considered in advance (e.g., beanbags should be filled with safe items and have reinforced stitching; scarves or ribbons should be trimmed so children won't trip on them; hoops should be molded in one-piece).*
6. Act out ways that movement and dance can show feelings or convey meaning. *Link to Dance as Expression 3.1, 3.2, 3.4, 4.1; Performance in dance 4.3*	• express emotions (e.g., tapping feet or clapping hands like they're happy, angry). • act out various objects, animals, or characters in various conditions (e.g., moving like a snake, spider, turtle, cat, elephant, frog, dinosaur, a bowl of jello; a very cold person; a leaf in the wind; a washing machine, an egg beater, a magical elf). • listen or move to music that evokes emotion and talk about how it makes them feel (e.g., *The Sorceror's Apprentice, Carmen*).
7. Develop audience skills by observing performances or artists at work in various aspects of the Arts. *Link to Critical Response in Dance 5.4, Music 5.2, 5.5; Theatre 5.1*	• attend performances in settings outside the classroom (e.g., a trip to a local rehearsal or performance, puppet shows). • talk about, observe, and use appropriate audience behaviors (respectful watching/listening). • watch the teacher or a guest dance, play an instrument, sing, demonstrate art. • observe artists in action by visiting studios or inviting various kinds of artists to visit the classroom and demonstrate their work (e.g., painters, dancers, composers, singers, sculptors, craftspeople, architects, writers, instrumentalists).

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Music

Learning Guidelines	Ideas for Learning Experiences
8. Sing a variety of songs within children's vocal range, independently and with others. *Link to Singing 1.1*	• sing songs with clear, easy melodies. • sing fingerplays (e.g., *Eensy Weensy Spider, Two Little Blackbirds, Where is Thumbkin?*). • sing independently while music is being played (e.g., during center times and free time). • listen to and sing many nursery rhymes, lullabies, and songs from around the world. • sing in groups that allow children to respond individually (e.g., good morning songs).
9. Sing expressively. *Link to Singing 1.2*	• use soft and loud voices at appropriate times when singing. • sing chants, action songs and songs that use intonation to set the mood (e.g., *If You're Happy, The Wheels on the Bus, Five Little Pumpkins*). • sing songs that have personal meaning (e.g., songs about their names, body parts, clothes, feelings, animal songs and home and family, songs to celebrate special events and occasions). • sing songs that use gestures to illustrate or substitute for words (e.g., *Grey Squirrel, Six Little Ducks*).
10. Sing songs with repetitive phrases and rhythmic patterns. *Link to Singing 1.3, 1.4*	• sing songs with dominant rhythm patterns, repetition and nonsense syllables (e.g., *Miss Mary Mack, Wibbledy Wobbly Wee*). • sing songs with rhythmic body movements (e.g., finger plays, *Head Shoulders, Knees and Toes, London Bridge is Falling Down*). • sing call-and-response songs (e.g., *Did You Feed My Cow? Yes, M'am*).
11. Listen to various kinds of instrumental music and explore a variety of melody and rhythmic instruments. *Link to Playing Instruments 3.1, 3.3, Critical Response 5.4*	• explore the sounds made by various rhythm instruments (e.g., wood blocks, sand blocks, notched rhythm sticks, rain sticks) and melody instruments (e.g., tone bar, xylophone, hand bells, piano). • create hand-made instruments (e.g., pie tin cymbals or guitars, tin can maracas, shakers made with plastic eggs, sandpaper blocks, drums made from boxes). • listen to music made by a wide variety of instruments including wind, string, and percussion. • invite parents and other visitors to demonstrate music, instruments, and dances from various cultures.
12. Play instruments using different beats, tempos, dynamics, and interpretation. *Link to Playing Instruments 3.2, 3.4; Critical Response 5.5*	• play instruments while marching to various tempos and dynamics (fast/slow, loud/soft; e.g., *March of the Toys* from *Babes in Toyland*, marches by John Phillip Sousa). • imitate simple melodic or rhythmic patterns (e.g., use rhythm sticks, wood blocks or tambourines to keep time with a music with a strong beat such as march or samba). • use guided imagery to imitate sounds or a musical beat (e.g., what would a frog jumping sound like? a rabbit hopping? a clock ticking?). • experiment with playing instruments in different ways (e.g., muffling the sounds of instrument; holding instruments in different positions; striking an instrument hard/softly). • use musical instruments to enhance storytelling (e.g., ring bells in response to *The Doorbell Rang* or the *Polar Express*).
13. Listen to, imitate, and improvise sounds, patterns, or songs. *Link to Improvisation and Composition 4.1, 4.2, 4.3, 4.4*	• create responses to call-and-response songs (e.g., *Little Sir Echo, Old MacDonald, Wheels on the Bus, What Do the Elephants Say Today, Down By the Bay*). • listen and imitate sounds (e.g., recordings of environmental sounds such as a squeaking door, a door bell, howling wind, a babbling brook) with voice, body, or musical instruments. • make up songs about their experiences or make up new words to familiar songs.

Theatre Arts

Learning Guidelines	Ideas for Learning Experiences
14. Listen to storytellers and watch puppet shows. *Link to Acting 1.1; Reading and Writing Scripts 2.3, 2.4, 2.5*	▪ listen to visiting storytellers. ▪ talk about the characters in puppet shows and what each one said or did. ▪ listen to stories in small and large groups, and tell stories to each other.
15. Use dramatic play, costumes, and props to pretend to be someone else. *Link to Acting 1.3*	▪ retell or act out stories or folktales through dramatic play, puppets, flannel board. ▪ create a character based on stories or through improvisation. ▪ play out roles with dolls, prop boxes, costumes (e.g., picnic items; post office material: stamp pads, envelopes, crayons, pencils; supermarket items: cash register, play money, grocery boxes). ▪ role play characters from familiar songs, stories and nursery rhymes (e.g., *Three Bears, The Three Little Pigs, Humpty Dumpty*).
16. Create characters through physical movement, gesture, sound, speech, and facial expressions. *Link to Acting 1.4, 1.5*	▪ pantomime various characters using body movement, facial expression and gestures. ▪ use various kinds of puppets to experiment with ways to express different characteristics (e.g., hold it in different ways, experiment with different voices, movements). ▪ use movement, gesture, voice and facial expressions to convey characteristics or roles of a character (e.g., pretend to be a cook, doctor, ballet dancer, lion, bear, butterfly). ▪ act out dialogue from familiar stories (e.g., "Who's been sleeping in my bed?" "Little pig, let me come in, I'll huff and I'll puff... ") using dramatic play, puppets. ▪ make up dialogue in dramatic play (e.g., act out a grocery store clerk saying, "It will cost 10 cents.").
17. Create scenarios, props, and settings for dramatizations and dramatic play. *Link to Technical Theatre 4.1, 4.2; Acting, 1.6, Reading and Writing Scripts 2.1, 2.2; Directing 3.1*	▪ play with other children in dramatic play (e.g., decide who will play various roles). ▪ act out familiar rhymes in pairs or small groups (e.g., *Five Little Monkeys; Little Sally Walker*). ▪ create simple puppets out of fabric, paper tubes, paper plates, popsicle sticks, buttons, yarn. ▪ make hats out of paper, fabric material, boxes. ▪ paint large appliance cartons to create houses, vehicles. ▪ create group-constructed murals (paint on large wallpaper) for use as a backdrop. ▪ discuss and create settings of stories (e.g., a farm using blocks and models of people and animals in the block area; the cottage of *The Three Bears* in the kitchen area). ▪ arrange furniture to create specific effects for scenes (e.g., set chairs in rows with aisles to recreate a bus or plane; arrange dramatic play area to represent a hospital, grocery store.)

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Visual Arts

Learning Guidelines	Ideas for Learning Experiences
18. Explore a variety of age-appropriate materials and media to create two- and three-dimensional artwork. *Link to Methods, Materials, and Techniques 1.1, 1.3*	▪ use different types of paints (e.g., tempera, water colors, finger paints) and various textures of paper. ▪ use a variety of painting techniques and tools (e.g., various size brushes, sponges, cotton balls, Q-tips, fingerpainting, printing with found objects such as sponges, corks). ▪ use found materials to create collages (e.g., feathers, buttons, wool fabric, steel wool, recycled materials). ▪ construct assemblages using wood, glue, and other three-dimensional materials. ▪ make sculptures out of play dough, clay, or plasticine. ▪ make impressions in clay or play dough with common objects (e.g., clothespins, pine cones, shells). ▪ play with various kinds of modeling materials including play dough, clay, plasticine, pipe cleaners and wire to construct shapes/objects (e.g., twisting, coiling, wrapping). ▪ experiment with combining various materials and media. ▪ listen to and use appropriate vocabulary related to materials (e.g., clay, wire, fabric, yarn, watercolor, tempera, crayon, chalk) and techniques (e.g., collage, painting, drawing, building, sculpture).
19. Observe the safe and appropriate use and care of art materials. *Link to Methods, Materials, and Techniques 1.4*	▪ discuss how tools such as scissors and brushes should be cared for properly and used safely. ▪ take responsibility for caring for various art media respectfully (e.g., make sure lids are on play dough, paint and paste containers securely to prevent evaporation; replace caps on markers).
20. Explore and experiment with wet and dry media in a variety of colors including black and white. *Link to Elements and Principles of Design 2.1*	▪ listen to and use the names of primary and secondary colors including black and white in various media (e.g., tempera, fingerpaint, watercolors, crayons, markers, chalks). ▪ combine primary colors to discover secondary colors using tempera, watercolors, or food coloring. ▪ paint with black and white and combine them with other colors to achieve shades of light and dark. ▪ use various media of a single color and compare the effects in each medium. ▪ create tissue paper collages by cutting, pasting and overlapping paper of various colors.
21. Explore how color can convey mood and emotion. *Link to Elements and Principles of Design 2.1*	▪ talk about how different colors make them feel. ▪ paint to music that evokes various moods using a variety of colors.
22. Explore various types of lines in artwork and in nature. *Link to Elements and Principles of Design 2.2*	▪ draw lines of various sizes (e.g., thin, thick, straight, crooked, curved) using a variety of sizes of paint brushes, markers and crayons and chalk. ▪ take a "line walk" to observe and label various kinds of lines in the environment (e.g., jagged, straight, curved, thick, thin) on walls, ceilings, buildings and fences or explore architectural lines in environmental photographs. ▪ examine objects in nature to find naturally occurring lines (e.g., lines on sea shells, in wood, on leaves).

Learning Guidelines	Ideas for Learning Experiences
23. Experiment with the use of texture in artwork. *Link to Visual Arts/Elements and Principles of Design 2.3*	▪ use a single texture theme to create collages (e.g., soft, hard, fuzzy, rough, smooth, shiny). ▪ create collages using materials of various textures (e.g., pieces of sand paper, fake fur, velvet, mylar, hard plastic, cotton balls). ▪ use paper or wallpaper of various textures for painting, weaving, printing. ▪ make crayon rubbings by placing shapes or textures under paper and rubbing over the surface.
24. Use basic shapes and forms of different sizes to create artwork. *Link to Elements and Principles of Design 2.4*	▪ create artwork with a theme of circles, squares or triangles or using natural forms. ▪ print with sponges cut into shapes or objects that are circles, squares and triangles. ▪ paint on easel paper cut into basic shapes. ▪ use shapes as a starting point in a drawing or design (e.g., "What can you make with a circle? A triangle?")
25. Explore concepts of pattern and symmetry in the environment and artwork. *Link to Elements and Principles of Design 2.5*	▪ look at books that illustrate patterns and symmetry. ▪ create "ink blot" drawings by folding paper in half, dropping paint in the fold and pressing the refolded paper. ▪ create patterns using shape stickers. ▪ explore quilts and observe patterns; then create a class quilt on a mural using shapes/strips of patterned or colored paper.
26. Create artwork from memory or imagination. *Link to Observation, Abstraction, Invention, and Expression 3.2*	▪ create drawings, sculptures (e.g., of their pet or of an animal they saw in a zoo). ▪ create props for use in imaginary play or performance (e.g., wings, magic wands, snakes). ▪ illustrate a story. ▪ draw a picture documenting what they did at school.
27. Choose artwork for display in the classroom, school or community or for a personal book, class book or portfolio, and explain why they chose it. *Link to Drafting, Revising, and Exhibiting 4.1, 4.2; Critical Response 5.1*	▪ create personal books of their artwork (e.g., photographs of their art in process, actual examples of their artwork). ▪ work collaboratively to create art work for display (e.g., mural, large fence painting, table top crayon rubbing). ▪ explain their choice of personal works of art with a teacher, classmate, or parent, and describe how they were made. ▪ describe elements of their artwork using words for color, line, textures and shapes with teacher prompts (e.g., "Tell me about your painting, sculpture, building...").

Appendix A

Adaptations for Children With Disabilities

Note: These are just a few suggestions for adaptations. Consult more comprehensive resources to make sure the curriculum and classroom are adapted appropriately for children with different disabilities. Many of these strategies are also helpful for children without disabilities and for English language learners.

For children with vision disabilities:

- Place direct lighting over work areas and locate art area near bright indirect light to assist children with visual disabilities.
- Make sure children identify themselves before speaking.
- Use thick cord taped to the floor to mark children's personal space.
- Use art materials that provide texture (e.g., gel paint that dries with a raised surface; tempera paint with sand added); high-contrast paper (light, dark, shiny, sparkling); bold colors that are easy to differentiate.
- Provide materials with Braille and tactual symbols along with opportunities for development of tactile skills.

For children with hearing disabilities:

- Use visual pictures or symbols to illustrate the words to songs.
- Provide visual cues such as red and green cards to indicate that the drumbeat or music has started or stopped.
- Face children and tap out the rhythm on a drum in their view; invite them to feel the drum.
- Invite children to sit near the speaker or lean against the piano to feel the vibration as music is played. Also increase the bass.
- Include visual props to enhance the meaning of songs or stories.
- Create "storyboxes" for familiar stories. For example, place props for the story *The Three Little Pigs* in a box. When the story is read aloud, the props offer both tactual cues for the words being read, and the opportunity to act out story components. In this way concepts that might be available only by seeing or hearing will be made more meaningful while also allowing children more direct involvement with the story. These strategies enhance the activity for all children, not just those with a disability.

For children with language disabilities:

- Provide good models of communication (in any language).
- Use special or adaptive devices to increase a child's level of communication and/or participation.
- Use a favorite toy, activity, technology, or person to encourage communication and/or participation.
- Provide opportunities for interaction with typically developing peers.
- Use a variety of symbols (tactual symbols, object symbols, picture symbols such as Mayer-Johnson pictures) around the room along with various printed materials that support children's primary languages while they are learning English (e.g., books, newspapers, magazines in the dramatic play area).
- Arrange the room to encourage language and conversations (e.g., tables pulled away from walls so that children sit or stand opposite each other).

For children with physical disabilities:

- Use adaptive equipment and furniture so children can participate in all parts of the curriculum, small and large group activities, circle time, etc., along with their peers.
- Ensure that classroom space allows for wheelchairs, walkers or other equipment so that children using them can move about the classroom safely and independently.
- Use adaptive equipment on the playground so that children can play with their peers and benefit from physical exercise.
- Make sure that the classroom is arranged so that toys, games, dramatic play and art materials are equally accessible for all children.

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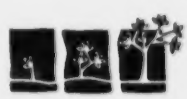

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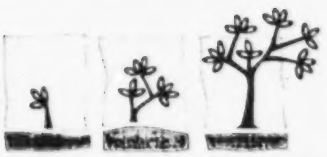

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